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THE

FLORICULTURAL CABINET,

AND

Florists' Magazine.

JANUARY TO DECEMBER, 1857.

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PREFACE.

AT the conclusion of our editorial labours of another year, it becomes our duty, and is indeed a pleasure, to return our unfeigned thanks to our subscribers for their noble support of the FLORICULTURAL CABINET. Established originally twenty-five years ago (in 1833), and the first periodical devoted to Floriculture, it is, consequently, the parent of all similar publications that have since appeared; it is therefore most gratifying and indeed highly flattering to us that we still maintain our position at the head of the poll. In stating this much we do not take praise to ourselves, but are glad to perceive that our efforts, aided by numerous able contributors, in the cause of Floriculture have met with an ample reward; and here we take the opportunity to inform the supporters of this work that we do not publish the CABINET as a monetary speculation, being quite content to give our services to the cause of Floriculture.

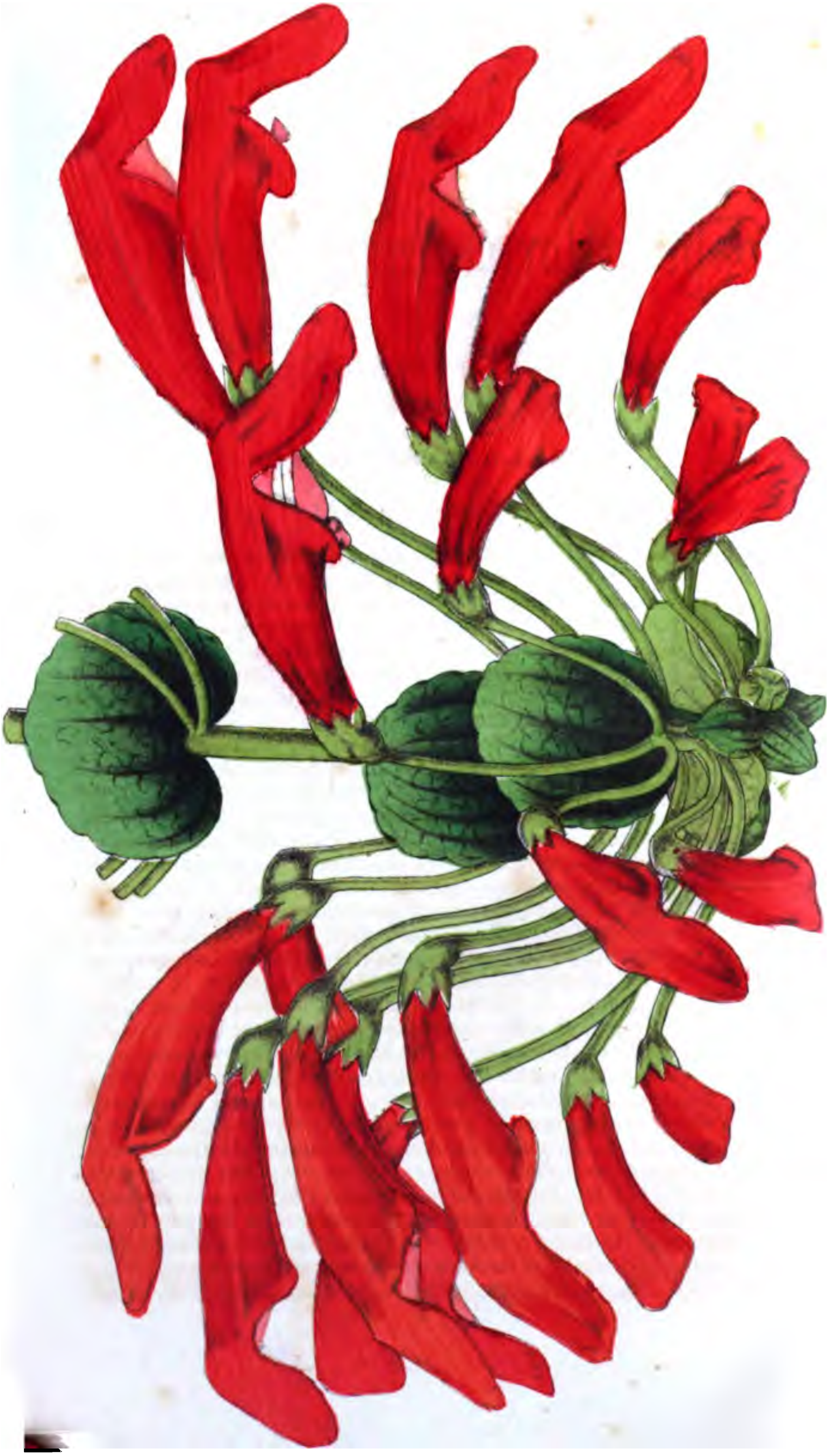
It is, as heretofore it has been, our desire to render this magazine a cheap and popular vehicle for the diffusion of a knowledge and promotion of the love of gardening, in this, its most delightful department—the culture of flowers. With this desire the work was commenced, and the public were pleased to give it a noble support, such indeed as few periodicals could ever lay claim to, having disposed of as many as twelve thousand impressions monthly. On the establishment of the garden newspapers the sale of the work in some degree fell off, as might have been expected, but we have since been gratified to find its sale again rise, and that it appears likely to increase.

Our desire is to make the FLORICULTURAL CABINET a *useful* *work*, and in doing this our subscribers can help us materially—such as approve of it can help us with their recommendation—they can help us also, by their communications and advice, for we are always most ready to respond to wholesome advice, and have effected certain improvements through the suggestions of some of our correspondents, while we have others in contemplation. So long as we meet with public support and appreciation of our labours, so long shall we continue to carry on the CABINET, and in proportion as we have that support increased, we shall continue to improve the work. We wish to give the best matter and the best illustrations that we can for the money.

On this occasion we must not omit to return our cordial thanks to many old and valued correspondents as well as to old subscribers, some of whom are of twenty-five years standing—death, alas! has removed a few, whose place can be occupied only by new ones, of these we have however not a few, and we trust the number is increasing. One valued contributor, in a letter recently received, and from which, with permission, we lay an extract before our readers, says—"I am truly glad the *Cabinet* is so well supported. Since its commencement, when I was a young and enthusiastic florist, many periodicals of a similar nature have appeared, but only to disappear. One sound work that has an established hold on the friends of Floriculture is, however, more deserving of support than all the ephemeral publications of the day. Nevertheless, the attempts so frequently made to establish new publications, is an evidence of the spread of a love of our favourite art amongst all classes of the community."

Again thanking our subscribers for their past support, and trusting the enlistment of it in future, as well as for their recommendation of the work to their friends and neighbours, we take our annual farewell, with grateful acknowledgments, and hearty wishes for a *happy new year*.

LONDON, *December*, 1857.



The Floricultural Cabinet.

JANUARY, 1857.

ILLUSTRATION.

DIRCÆA BLASSII.

JUSTLY has the old genus Gesneria been subdivided by the continental botanists; such members of it as are distinguished by a remarkable elongation of the upper lip of the corolla, and possess large tuberous rhizomes, with other minor peculiarities, now form the sub-genus Dircæa. Almost all of them are of erect upright habit; but to this rule the species now figured is an exception, being prostrate, and its branches dependent. *Dircæa Blassii* is by far the most magnificent of the tribe, and for its introduction we appear to be indebted to M. Kraemp, an enthusiastic and very successful cultivator at Holbocken, near Antwerp, at whose sale the stock was purchased by M. Van Houtte, in whose establishment at Ghent it has bloomed, and where, says that gentleman, "a specimen plant of extraordinary size has excited the admiration of all who have beheld it. This plant at the present moment bears fifteen pendent stems, each *more than seven feet in length*, carrying *upwards of one hundred and fifty flowering branches*, which bear altogether *from fifteen hundred to two thousand lovely blossoms!*" The colour of the latter is a clear, velvety, orange-red, the throat being paler, and the foliage a rich green. We regret that the size of our plate does not admit of our doing justice to the splendour of the plant, which bears cluster upon cluster of flowers, ranged one above another, all down the stems. The culture of Dircæas resembles that of others of the *Gesneriaceæ*, *D. Blassii* having flowered profusely, with M. Van Houtte, in a temperate house. We are compelled to add our tribute of admiration to this extraordinary plant, which we rank as one of the most promising additions of late introduced to European gardens, and deserving a place wherever the necessary accommodation for its growth can be afforded. Its native country is not clearly known, although there can be but little doubt of its having been received from some province of Brazil. The specific name is in honour of M. Blass, of Elberfeld,

ON LESCHENAULTIAS.

BY MR. JAMES AYRES.

THERE are few plants more beautiful than good specimens, well bloomed, of Leschenaultias, both of the red and the blue varieties. The former, *Leschenaultia formosa*, produces its pretty flowers at various seasons of the year, and its habit is very compact; the blue, *L. biloba*, blossoms in early summer, but its habit is somewhat more straggling, and unless "stopped-in" while young, it is not easy to obtain compact and bushy plants. To have neat-looking well-formed specimens, it is desirable, in the first instance, to select young plants proper for the purpose, which should be stiff and bushy, with good roots. Having such plants to work with, an active healthy growth must be induced as early in spring as possible. Commencing in March, place them near the glass, in a position which allows a free admission of air at all favourable times; a temperature of about fifty degrees at night, allowing it to rise ten degrees higher during the daytime. When the state of the roots indicates that a shift into a larger size is desirable, give them more space, and attend to watering, as well as to maintaining a pretty moist atmosphere, until they have made new roots. At all times, when freely progressing, let them have a liberal supply of water at the root, and sprinkle the floor of the house, as well as the plants, over-head, with the syringe. Care is necessary to preserve these plants from cold dry winds or currents, of which the Leschenaultia is very impatient. If placed in a cold pit during the summer months, and protected by a thin shade from noonday sun, they will make a robust and active growth. Keep the pit close during the evening, and regularly water the ashes on which the pots should be set, as well as continue to sprinkle them over-head with a fine syringe, but raise the lights a little for the night-time. By the beginning of July it is probable some of the plants may again require shifting, in which case avoid large shifts. At the close of August they will have made their full growth for that season, and require to be hardened off by a full exposure to the air and sun, ready for the winter, reducing the waterings; at this time and when winter arrives, it requires some care to preserve the plants from the evil effects of moisture, as they are apt to suffer from damp. When water is given, the best time is early in the day, and the foliage should be kept dry, especially in dull or damp weather. If the specimens have attained the desired size, they may be preserved in a greenhouse temperature during spring; but if not sufficiently large for flowering, adopt the same treatment this season as last. It is often necessary that *L. biloba* should be cut back, in order to make it bushy; and *L. formosa* should have the blooms picked off as they show. After flowering, to secure compact growth, they may be shifted, and cut in; under proper treatment, the specimens will last some years, yet it is an advantage to retain a stock of healthy young plants. The display of the blue variety is considerably prolonged by shading it during bright weather. The compost which I find of the greatest advantage in the successful cultivation of Leschenaultias is made by mixing fibrous peat, broken up into small lumps, a small quantity of mellow loam, and plenty of silver sand; the pots cannot be too well drained. To propagate, select cuttings from firm pieces of the young wood, early in spring, prick them in sandy peat, and cover with a bell-glass; in a bottom heat of seventy degrees they will root in a short time, when they should be potted off in small pots, and replunged till they have become established.

ON THE CULTURE OF BEGONIAS.

BY THE FOREMAN OF A LONDON NURSERY.

BEGONIAS are becoming universal favourites, and where floral beauty and handsome growth are required, I believe there are few genera which are more desirable than the subject of these remarks. Within the past ten years the Begonia has risen greatly in the estimation of cultivators, which is probably due to the fact of the progressive improvement which has taken place in their method of culture, and to the introduction of many handsome species; besides which, the genus is remarkable for the abundance and long continuance of its blossom, so that there is scarcely one month in the twelve wherein some one or other of the species may not be seen flowering in perfection.

Many persons have been deterred from the cultivation of this interesting tribe because stove treatment has been by some considered indispensable to their proper growth. All are, it is true, benefited by a considerable amount of heat in the early stage of their progress, but a stove temperature is not an indispensable requisite in the culture of a number of species; and all who can command a hotbed, or an ordinary brick pit heated by hot water or by dung, may manage them in perfection, as the plants require a gentle bottom heat for the roots, and an atmosphere uniformly moist. As they advance in growth, the degree of warmth should be suffered to decline gradually until the bloom shows, when, in summer at least, it may be withdrawn altogether. This conduces greatly to the health of the plants, which are thereby more robust, and the bloom lasts much longer, as well as assumes a finer tint. In their native localities Begonias are mostly found in shady sheltered places, growing in a humid soil, and following nature, we find it beneficial to shelter them during growth from mid-day sun, and to administer water with liberality; but here it must be noted that free drainage is essential, and if water passes off quickly from the pots, so as to leave the soil just moist, and not stagnate, no evil result will follow the most copious application. When the plants are at rest however, and before they recommence growth, this element should be sparingly afforded. Those kinds which have slender stems and small leaves, as *Begonia Martiana*, require even less water than the more vigorous ones. Liquid manure, especially a very dilute solution of guano, is of great benefit, though this must never be given until the plants have begun to make some progress in their growth. Various soils and composts have been recommended by cultivators, some preferring peat, some loam, and others light sandy earth; I am assured, however, that although these may suit some species, they cannot be of so great advantage as a rich soil, made of rotten turf from a pasture, decayed leaves, and fibrous peat, in about equal proportions; observing to use more of the latter in making a compost for the delicate kinds, and more leaf-manure for the stronger and more vigorous species.

Pot-room is of great advantage to this tribe, and the plants will progress rapidly where the roots are not confined, and the soil is good; the abundance of their bloom depends greatly on this. I must remark, however, that a plant should not be shifted late in its growing season to a pot of much larger size, for large shifts are only proper where plants are commencing growth. There are several species which I find do well in a greenhouse border; the most effective plan of carrying this out is to appropriate a border, or a portion of one, exclusively to their growth. They soon exhaust the soil however, which will require renewing every other year, and those of the caulescent kind should have their old shoots cut away annually, to encourage strong stems pushing from the roots; the tuberous species require taking up and replanting yearly. Attention to pruning and cutting in makes fine specimens, and no wood should be allowed of more than two years' growth; for it is always found that old wood yields fewer and smaller flowers than the young and succulent shoots of new growth, which at all times form the handsomest specimens, and although this occasions rather more trouble, yet a few well-grown and well-bloomed specimens are far more pleasing, and reflect much greater credit on the grower, than a number of tall, lanky, ill-formed plants, almost destitute of flowers and foliage.

The following are among the best varieties now in cultivation, and may serve as a guide to such as are about to form a small collection. *Albo coccinea*, dwarf, red and white; *Argyrostigma*, foliage handsome, spotted with white dots; *Coccinea*, scarlet, flowers in winter: *Fuchsioides*, scarlet flowers, borne in graceful drooping panicles; *Manicata*, pink, very large panicles, foliage ornamental; *Martiana*, bright rose, very ornamental, tuberous-rooted; *Nitida*, white, with yellow centre, flowers in splendid large panicles, very showy; *Opuliflora*, pure white, flowers in compact round heads, resembling the Guelder Rose;

Parviflora, white, blooms a very long time, very neat and pretty; *Prestoniensis*, large, bright orange-scarlet; *Sanguinea*, foliage very red; *Saundersiana*, dwarf, bright rosy red, free blooming; *Verschaffeldtii*, dwarf, pink, foliage large and fine; *Thwaitesii*, blush, white and yellow, very dwarf and neat, strikingly handsome foliage, requires to be grown under a bell-glass; *Xanthina*, yellow, dwarf habit, large foliage; *Xanthina marmorea*, foliage blotched with white; *Zebrina*, very ornamentally marked foliage; *Zeylanica*, foliage beautifully frosted, dwarf and compact habit,

EPIPHYLLUMS.

BY F. E., COUNTY DURHAM.

HAVING cultivated these plants with great success, and finding them so valuable at this time of year, I am induced to send the result of my experience to the *Floricultural Cabinet*, hoping to recommend a gem to those who know it not, and perhaps (in their grafted form) a variety and novelty to others. I became possessed accidentally of a grafted plant of *Epiphyllum violaceum*, which grew and flourished remarkably well; but was long in ascertaining the name of the stock it was grafted on, and which I find is the old *Pereskia aculeata*, or American Gooseberry; which, though a slender plant, has the power of supporting much larger and stronger ones of its own tribe. The stem is nineteen inches from the pot to the graft, and not thicker than a common-sized lead pencil. The head without any training is a complete circle, as large as a parasol; it produces more than a hundred flowers at one time, and always blossoms twice between November and June; last year, however, it flowered three times, equally well, and with no diminution in the size or colour of the blossoms, nor any signs of exhaustion in the foliage. It has now (November the 30th) been in bloom a month. Its singularly pretty flowers have been compared to insects alighted on the green branches, their position being so buoyant and aerial; their form is curious, the colours are exquisite, while the stamens and pistils are of such brightness and fineness that they may be compared to spun glass.

E. truncatum, is coarser, and of a dull red in comparison; but it is valuable in itself, and particularly for its flowering (though somewhat later than *violaceum*) at a time when there is so little variety of other blossoms. The method of grafting them on *Pereskia aculeata* is this: cut the head of the stock off from six inches to two feet, as preferred for the height, and with a sharp knife make a slit in the middle, from the top, about half an inch long, then insert the graft like a wedge, press it firmly into the stock, and pass a spine of any other strong-growing sort through the graft and stock, to prevent the former slipping out of its place; bind a little soft moss round the part operated on, and in a week or ten days it will have rooted, and will soon form a fine head. The treatment of the Epiphyllums is the same as the Cactus tribe in general, but they require a stove to bring them to perfection; they should be dried off when done blooming, and have but little water at all times. The Pereskia strikes readily from cuttings, and will grow in almost any soil; but the Epiphyllums on their own roots require a strong loam, leaf-mould, and cow-dung; they also strike easily, and flower the second year.

Grafted plants are decidedly more abundant bloomers, both as to the number of flowers and continuance; indeed, the repetition is wonderful, and at some stages appears exhaustless.

THE APHELEXIS, ITS PROPAGATION AND MANAGEMENT.

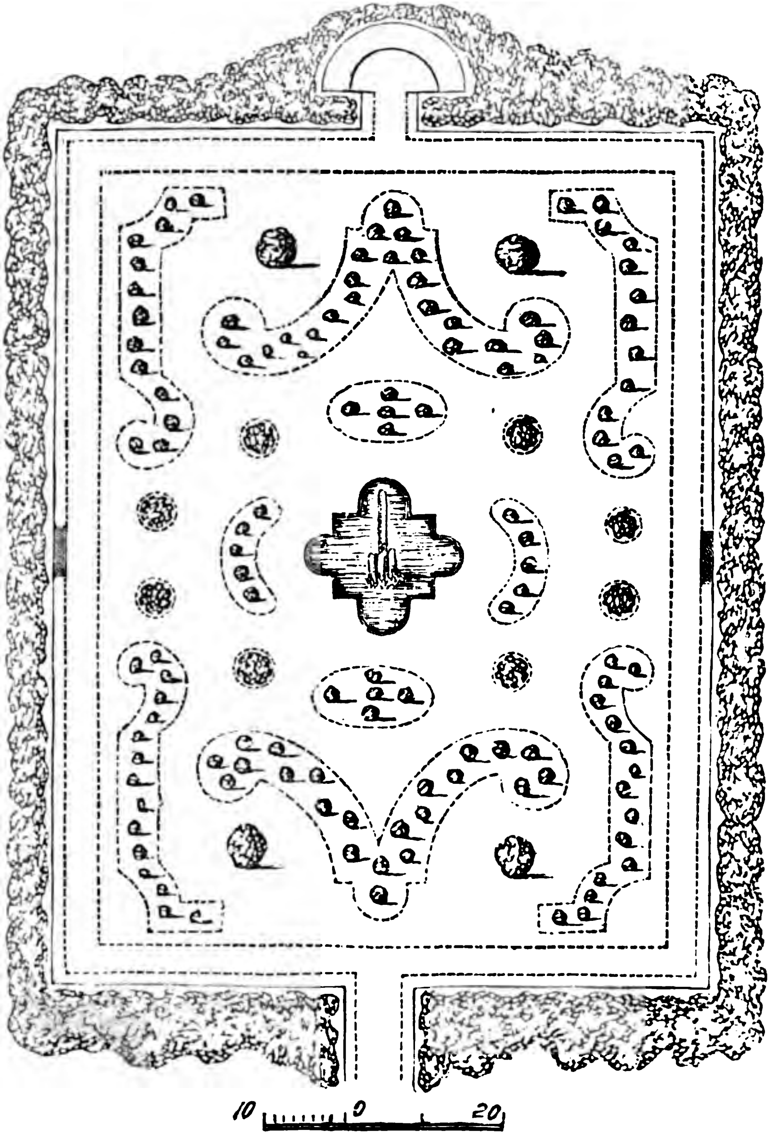
BY W. BURLEY, CHISWICK.

THIS tribe is the handsomest among the "everlastings," whether we regard the beauty and profusion of the flowers, or the habit of the plants, and are deserving of more general cultivation. In the hope of inducing some who may not have attempted to commence the management of a small collection, I forward a brief outline of their treatment, as practised by me with much success, and shall be happy should you deem it worthy of a corner in your wide-spread little work.

First, as to propagation: young shoots are best for this purpose, and such should be chosen as are become firm towards the bottom, and exhibit no signs of bloom. The proper time to put them in is towards the end of April, or the commencement of the following month; they should be cut clean across at the base with a very sharp knife, and the scales or leaves dressed off for about an inch. Procure small pots, put in plenty of crocks to ensure thorough drainage, over which place a layer of fibrous peat, and then fill up with silver sand, which must be well damped, and the cuttings inserted. The small pot containing the cuttings I always place inside a larger one, filling up the space between the two with sand, and covering with a bell-gass, which fits within the rim of the larger one. In sunny weather they require shading, and, when water is given, the bell-glass should be left off until the sand is dry at top. The proper place for them at this time is a gentle hotbed. In a few days the glass may be slightly raised towards evening, to admit a little air, and prevent the fatal effects of damp; when the cuttings have made some root they may be taken off for good, and when fully rooted pot off into small pots and place them in a cool frame, shading them in hot sun, and here they may be kept during summer. Many prefer to purchase young plants rather than incur the trouble and care of propagating them, and for this purpose select young plants which are short and robust in their growth, and in small pots. Such plants should be immediately shifted, and if they have plenty of roots they should be loosened previously to repotting. The soil most conducive to their well-being is composed of fibrous peat, with about one-half of silver sand, or any sand of a hard, clean, and gritty character, a very small portion of loam, and a few little bits of broken pots and pieces of charcoal; in this the plants will rapidly improve, and as they make progress and the pots become filled with rootlets, they will require shifting into a size larger. If the young plants are procured in spring, they may have two shifts the first season; and to make shrubby plants the shoots should be stopped, as well as to prevent the formation of flowering buds the first season. The next year they may be allowed to bloom, after which it is necessary to prune them in somewhat, cutting in the long flowering shoots, and repotting the plant. In winter, water must be very carefully administered, although the soil should never be allowed to become absolutely dry. When the spring growth sets in more water is required, and as the bloom begins to show, some very dilute manure-water may be given about twice a week, and the syringe can be frequently used over the head of the plants, which greatly contributes to their health and vigour. In spring the plants require a temperature of about fifty degrees, with a free circulation of air, but cold draughts must be carefully excluded, and as summer approaches, the temperature increasing, the pots should be shaded from the great heats of the sun. In early autumn they may be plunged in a cold pit and fully exposed, putting on the lights only in heavy rains and as the cold nights draw on; by the middle of October they should be removed to the greenhouse, and in winter the temperature should never be allowed to descend much below fifty at night. The beautiful blossoms of the Aphelexis may be preserved for years, if kept free from dust and damp, and make handsome winter bouquets, associated with flowers of the Gnaphaliums, Helichrysums, and dried Grasses, as *Briza maxima*, *Stipa pennata*, etc., as well as the dried capsules of the pretty red *Physalis Alkekengi*. The following brief list comprises some of the best Aphelexises at present in cultivation:—*A. humilis*, var. *grandiflora*, rosy purple; *rosea*, fine dwarf rose; *macrantha purpurea*, the best dwarf purple variety; *prolifera*, var. *Barnesi*, very distinct, purple, foliage knotted; *Barnesi*, the largest and finest, rosy pink; *rupestris grandiflora*, rosy crimson; *speciosissimus*, rosy purple; *venusta*, a very distinct kind, with small flowers in bunches.

DESIGN FOR A FLOWER GARDEN.

BY T. RUTGER, ESQ.



THE annexed is a sketch of a flower garden enclosed within a shrubbery. The pond in the centre, with a fountain, may be stocked with gold and silver fish, or a flower bed may occupy its place if preferred. The small round clumps are all intended for masses, and the other portions of the garden to be dedicated to a mixture of such flowers as the proprietor may select. It will be perceived that there is a walk round the garden, inside the shrubbery, which leads to an alcove, or covered seat at the end. Seats one on each side round the garden are also indicated.

REMARKS ON PENTSTEMONS, WITH A DESCRIPTIVE LIST.

BY MR. C. JOHNSTONE, HACKNEY.

FEW plants make so fine a display for our beds and borders as the Pentstemon during summer and autumn, and some of the species in the spring; indeed, this tribe is worthy of being grown wherever herbaceous plants can be cultivated. A bed devoted to a choice selection will make a gay and very beautiful display of bloom during the whole of summer, and until towards the approach of winter frost. Some varieties also grow and look well in rockwork. Their cultivation is easy, and they require but little trouble to have them bloom in perfection. Almost any common good garden loam suits them, though a light compost is better, and the situation somewhat dry. A mixture of light loam and peat is what they do best in. Being generally hardy or half-hardy plants, they suffer less from cold than they do from damp; in winter they are apt to damp off, unless precaution be observed in that respect. It is a good plan to take off cuttings of all the kinds grown, in September, keeping them in a pit, greenhouse, or other dry place, until the return of spring, when they may be planted out into a bed prepared for them; the taller-growing varieties in the centre, and the dwarfs around the edge. Many may also be readily propagated by seed, or division of the roots. To make them bloom late and strongly, the early flowering buds may be pinched out as soon as they appear. They are all natives of the New World, and certainly rank with the best of the many herbaceous plants we have received from thence. The following list may be relied on as strictly correct, and will assist the amateur in making a selection according to his means and requirements.

ANGUSTIFOLIUM.—A species with narrow serrated foliage, bushy habit, grows a foot and a half high, flowers light crimson-purple. Introduced from Louisiana in 1811.

ARGUTUM.—A very pretty border plant, grows about a foot high, flowers free, of a purplish blue. It requires to be propagated each season, as the old plants are apt to die off in the winter. It was brought from Columbia in 1811.

Azureum.—A neat sub-shrubby plant, attaining from two to three feet in height, very branching, and produces numerous spikes of its beautiful blue flowers. It is highly ornamental throughout the entire summer season. It was discovered by Mr. Hartweg on the mountains of California.

Baccharifolium.—A distinct and pretty species from Texas. It is a half-shrubby plant, growing near two feet high, scarlet-red flowers, and neat foliage.

Campanulatum.—A compact grower, attains about a foot and a half high, flowers reddish purple, bell shaped. It is an old species, having been introduced from Mexico in 1794.

Cobœa.—This very showy species ought to be in every collection of this tribe. It is a highly ornamental sub-shrubby species, fine glossy foliage and large blossoms, white, tinged with purple, outside; inside, white, with a yellow throat, spotted and streaked with red; it grows about two feet high. It is unfortunately rather liable to be attacked with mildew, which, with a little attention to the application of sulphur, may be prevented. This species was brought from Texas in 1835.

Confertum.—A rather insignificant species, with small light flowers, tinged with purple; it grows about a foot high. Introduced from North America in 1827.

Conatus.—A useful border plant, but of rather coarse appearance; it grows about eighteen inches high. The foliage is clothed with soft hairs, the flowers are light purple outside and white within, spotted throat, bell shaped.

Cordifolium.—A really shrubby species, forming a spreading shrub. The flowers are narrow, tubular shaped, red. A distinct but not very showy plant. Introduced by Mr. Hartweg from California.

Crassifolium.—A free-flowering suffruticose species, growing about a foot high. Its blossoms are abundant, of a pretty lilac and rose colour. Discovered by Mr. Douglas in North-west America.

Cyananthus.—A beautiful hardy herbaceous plant. A native of the Rocky Mountains. The numerous compactly arranged and handsome blue flowers have a fine effect, being produced in a spike a foot long. This species will require attention to prevent mildew, by sulphuring. It grows nearly two feet high.

Diffusum.—A rather coarse grower, attaining about two feet in height, flowers freely, of a reddish purple. Discovered by Mr. Douglas, near the mouth of the Columbia River, in 1826.

Gentianoides.—The true species is of robust habit, growing from three to four feet high, and producing purplish blue flowers, of a bell form.

Gentianoides atro-cæruleum.—A vigorous-growing hybrid of the last-named species; it attains three feet in height, and blooms freely. The flowers are large, of a bright purple, with a white throat.

GENTIANOIDES ELEGANS.—A handsome-flowering hybrid, with light carmine-coloured flowers; it grows about a foot and a half high.

GENTIANOIDES M'EWENI, is of a compact bushy habit, growing about fifteen inches high. The flowers are of moderate size and very abundant, carmine-red, with a white throat. It is a fine border plant.

GORDONI.—This handsome species is a native of North America. It is a half-shrubby plant, growing about a foot and a half high, flowers lilac-blue.

HARTWEGI, usually known as *Gentianoides*, having a dwarf-spreading habit, with purple-crimson flowers, large and showy. Well worth cultivating.

HARTWEGI ALBUM.—It is a very useful variety, being white. Its flowers contrast well with the generality of this family, the majority of which are different shades of crimson, blue, and purple. It is a vigorous grower of the half-shrubby class, and forms a pretty bush, two to three feet high. Its spikes of clear white flowers are, when well grown, near a foot long, and the flowers large.

HARTWEGI ATROPURPUREUM.—A showy-flowering variety, with bright purple-red flowers; it is of a robust habit.

HARTWEGI BUCKI (generally known as *Verplanki*).—One of the most beautiful of the genus. It is a very vigorous grower, attaining three to four feet high, and produces large panicles of bloom. The flowers are deep red, and as they advance in age become various shades of salmon-rose; the throat is white, and very large.

HARTWEGI CLOWESI.— A very elegant variety, combining in its flowers bright scarlet and pure white throat, which contrast well. It is not so close in habit as some of this class; but, nevertheless, is indispensable in a collection of Pentstemons. It grows about a foot and a half high, and produces its large flowers freely.

HARTWEGI COCCINEUM.—A scarlet-red variety, of close habit.

HARTWEGI GRANDIS.—A hybrid, with large flowers of a purple-blue.

HARTWEGI SHEPHERDI.—One of the best of the genus, growing to about two feet high. The flowers are large, of a brighter scarlet than *Hartwegi*.

HARTWEGI VARIABILIS.—A very pretty variety. The flowers are of various shades, from near a pure white to a rose colour, pencilled with crimson; a very pretty hybrid.

HETEROPHYLLUM.—This species was discovered by Douglas in California, in 1834. It is a half-shrubby plant, growing two feet high. The flowers are of a clear lilac-pink, produced in abundance. It is a distinct and pretty species.

HIRSUTUM.—Grows about eighteen inches high, large foliage; flowers of a pale purple and white. A very old species, but distinct and showy. It was introduced as long ago as 1758, from North America.

Lævigatum.—An old but interesting species. Discovered in North America in 1776. It grows about a foot and a half high; flowers in the spring, of a pretty lilac.

Miniatum.—Obtained from the North of Mexico. It is a subshrubby species. The flowers are rich vermilion-scarlet.

Nitidum.—A dwarf-spreading species, with shining green foliage. The flower-stems rise about nine inches high, half of which bear close whorls of lilac-blue flowers. It is a profuse bloomer, and should be in every collection.

Ovatum.—A native of the mountains of Columbia, from whence it was introduced in 1826. It is a very showy perennial, growing two to three feet high; the flowers are in whorls, on a leafy panicle; they are a beautiful clear blue. It is a very handsome species, and ought to be more generally cultivated.

Procerum.—A dwarf-growing species, with lilac and pale purple flowers, which are produced in the spring months. It was discovered in North America in 1827.

Pubescens.—As the name denotes, this species has hairy foliage; it grows about a foot and a half high; flowers light purple. It was introduced from the same locality as the last species in 1758.

Pulchellum.—Brought from Mexico in 1827. It is of neat habit, grows about two feet high; flowers of a rosy lilac.

Roseum.—A pretty flowering and neat-growing species, of about eighteen inches high; flowers of a rosy red. It was introduced from Mexico in 1825.

Speciosum.—A bed of this plant when properly grown, and in full bloom, is exceedingly attractive. The fine dark and sky blue flowers, so profusely produced and so neat in form, render it a very desirable plant. It is best raised from seed, which ripens freely at the close of summer; it should be sown as soon as gathered, and potted off in spring. It was introduced in 1827 from North America.

Themestri.—A compact bushy-growing species, two to three feet high. A profuse bloomer; flowers bright rose, two inches long. It is a distinct and showy plant.

Venustum.—A handsome and close-growing kind, which attains about eighteen inches high; its flowers are of a bright rosy-purple. It was discovered in North America in 1827.

Wrighti.—A very distinct and pretty species from Texas, in North America; it grows two to three feet high, and flowers freely. The branching spikes of bloom are from one to two feet long; the flowers, which are bright rosy carmine, have a very short tube and a spreading limb. The foliage is glaucous, of a bright green.

OBSERVATIONS ON THE HOLLYHOCK.

BY MR. JAMES THOMPSON.

HAVING paid considerable attention to the cultivation of this favourite flower, which is deservedly rising in the public estimation since so many excellent new varieties have been produced through the assiduity of Messrs. Chater, Baron, and other eminent florists, I may be doing a service to lovers of the Hollyhock in forwarding a few observations for insertion in the *Cabinet*, respecting the best way of managing it.

Propagation is best attained by taking cuttings, which I find make the best flowering plants; these should be taken from the crown of the old root, when about two inches long, from the middle of April to the end of May. I place them in small thumb-pots, using a light sandy loam for compost, watering them rather sparingly, and plunge them in a gentle bottom heat in a close pit. It is necessary to guard against damp, to avoid which, give air every day for a short time; they will root nicely in three weeks, when they will require repotting into large sixty-sized pots, and in a week or ten days may be then hardened off, and next introduced into a cold frame until required to be planted out in the border. The cuttings must be kept clear of all dead and withered leaves, for, if not picked off, the plants are liable to rot and mildew. Some propagate the Hollyhock by means of eyes, which are taken from the "wood" in August, when the bark is sufficiently hardened, otherwise they will be tolerably certain to rot; I do not advocate this plan, as I consider the cuttings from the root a much safer method. When propagation is performed by dividing the roots, it is well to see that sufficient rootlets are kept to each piece, and this operation is best done after they have bloomed, in autumn.

To prepare the beds for planting, they should be trenched two feet and a half deep, and the soil, which should be, if possible, light sandy loam, well incorporated with rich decomposed manure. The middle of March is the best time for putting out the plants, though many prefer autumnal planting; but I think it will be found that spring-planted ones flower equally well with the others, and if they are planted late in autumn, frost may set in and injure the roots before they have had sufficient time to establish themselves in the ground. They require to have sufficient room for the development of their roots and foliage. I generally plant in rows down the centre of beds reserved and prepared especially for them, and during the growing season give frequent and liberal supplies of liquid manure, and if the weather be dry, water them regularly in the evening. The soil round the roots should be loosened from time to time. As soon as the roots have thrown up shoots about half a foot high, they must be thinned out, leaving about four spikes on each strong root, but not more than half that number, or even only one, where the roots are small and weakly. Provide neat strong stakes, and train the shoots to these, when they attain about eighteen inches from the ground. After lateral shoots make their appearance, carefully take them off, and if the bloom-buds set too thickly together, thin them out, so that the flowers may not be too closely crowded. By planting in succession, a fine display of bloom will be secured until the approach of the winter months, although August more especially is the Hollyhock's own month. Unless guarded against, slugs and snails are liable to infest the plants; but this may be remedied to a considerable extent by a sprinkling of quick-lime and soot, occasionally applied, on the soil around the plants. When the flowering season is over, the stems should be cut down to about six inches, and the crowns of the roots earthed up with dry sand, which will prevent the roots being injured by moisture and too much damp during the winter.

Seed may be sown soon after it is gathered, and fully ripe; light sandy loam is best for the purpose, and the pots may be plunged in a gentle hotbed. It is well to withhold water if the soil be tolerably moist, or to administer it with a sparing hand (although never allow it to become quite dry), until the seed-leaves are fully developed. As soon as the young plants will bear it, they must be carefully potted off, and set in a cold frame, admitting a free play of air among them at all suitable times during winter, and when March arrives, they will bear turning out into the open ground. Late-gathered seed, however, should be kept in a dry cool place, until the end of April, when it may be sown in a border out of doors.

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MIMULUSES.

BY CLERICUS.

NOWHERE have I seen these gay flowers so extensively grown, it appears to me, as their merits justly deserve, numbering among them so many beautiful varieties. They are a decided acquisition to the greenhouse, flowering rather early in the season, and bearing a succession of blossoms of much variety in marking and tints; under proper management, by taking off cuttings or suckers in succession, they may be made to yield a display from early in spring to the close of autumn. To make large plants and secure fine flowers, care must be exercised that they do not receive a check when their growth has started in spring, and the most suitable time to commence with them is, I believe, the middle of February. I take off suckers already rooted, and all the strong cuttings I can, as soon as possible after the growth has commenced. I use a good compost, with some river sand well incorporated, and place each in a small pot to itself, and if a hotbed is handy, I prefer to plunge them in; if not, I place them in a warm house, which gives them a fair start as soon as they make roots, which they are not long in doing. The young plants must never be permitted to get dry, for being naturally river plants, they delight in abundance of water. They will require repotting in pots a few sizes larger, to give them a liberal shift, as soon as the pots are filled with roots. When long enough, the side branches will require sticks to secure them from accident by wind, etc. Good maiden loam, well-decomposed manure, and plenty of coarse river sand is the most suitable compost for them. In this mixture they will grow vigorously, and may be shifted every three weeks until they attain to twelve-inch pots, for large specimens. When the growth is made, a cool shady place in the greenhouse, where there is a free circulation of air, must be provided for them, and they will make handsome objects for a considerable period. Out of doors also they are very useful in the flower garden, and make very attractive beds, even in moist situations, where few other plants will succeed, as these naturally grow in such places. The borders of a piece of ornamental water may be edged with them with good effect. *Mimulus cardinalis* and its varieties make capital shrubby plants for borders as well as for pots, being hardy perennials, and keep up a fine display in mass during the months of autumn. One of these, named *M'Lainii*, has a deep, velvety crimson blotch in the throat, and is especially handsome, although all are *good*.

REMARKS ON THE FRANCISCEA.

BY MR. W. GAINES.

SELDOM do we meet with a genus possessing more desirable qualities than the above named. Francisceas are easily grown, profuse flowering, and within the reach of all who possess the means of giving a moderate stove heat, or even a warm greenhouse; the prevailing colours of the known species are white, blue, lilac, and purple, added to which the foliage is handsome and the plants of good habit. The treatment required by them may be summed up in a few words, and having for years made a display with these plants with means rather limited, I may be permitted to offer the result of my experience. During winter they are placed in a cool pit, and preserved from frost. Early in March, when nearly destitute of leaves, I repot them, in a compost made of equal portions of peat, loam, leaf-mould, and a little sand; this soil suits them admirably. After being repotted, I place them in a gentle hotbed, plunged to the rims; the internal heat should not exceed 50° at first, but in three weeks may be permitted to rise to 60° by day, and kept at 55° by night. As the foliage increases, I gradually augment the quantity of water given to them, and when fully expanded liquid manure is occasionally used instead of water; but such a stimulant as liquid manure requires to be used sparingly, or the plants are thrown too much into leaf. When coming into flower the quantity of water I give them is great; the foliage is syringed frequently, and an occasional use is made of the sponge. When removed to a warm greenhouse or moderate stove, they will flower handsomely, and repay the little attention they have received by abundance of large-sized and full-coloured blossoms. Propagation is effected by cuttings in the usual manner; young shoots in sand, covered with a bell-glass, root quickly. Young plants must have a little care bestowed to make them nicely formed, by training and tying the branches to form good heads. I have now under cultivation all the species I have been able to procure, of which the following is a descriptive list. ***Franciscea acuminata*** (syn. ***Pohliana***), lilac, or lavender colour, very free blooming, but the foliage is not above medium size. ***F. augusta*** (syn. ***ramosissima***), colour lavender, habit dwarf, compact, and neat, a free-blooming variety. ***F. confertifolia*** (syn. ***laurifolia***), pale blue flowers of extra size, and fragrant, a fine trusser. ***F. eximia***, a handsome species, flowers large, lilac-blue, foliage very fine, of a beautiful green. ***F. Hopeana*** (syn. ***uniflora***), an old species, free blooming, blue and white, habit neat, and foliage rather small. ***F. hydrangeæformis***, pale purple flowers, borne in large heads, leaves fine and long. ***F. latifolia***, a handsome old variety, deserving of more general cultivation; well-grown specimens make handsome objects, the foliage of a very cheerful green, and the habit good; blossoms large, changeable in colour, from light blue to pure white; flowers of both being on the plant at the same time present a pretty appearance, and last a considerable period. ***F. macrophylla***, blue, the heads of bloom very large, remaining in flower a long time, foliage fine and broad.

NOTES ON NEW AND SELECT PLANTS.

PRIMULA EROSA. Nat. Ord. *Primulaceæ*. Syn. *P. denticulata*, var. *erosa*.—This species was discovered by Dr. Wallich about the year 1820. It inhabits the district of Kamoon, in the Himalaya Mountains; its introduction, however, to Europe is very recent. It somewhat resembles the beautiful *P. denticulata* in the colour of its flowers, being of a pale lilac, with a yellow eye; they are of a superior size, and are borne in larger heads. The foliage is not farinaceous, as in the preceding species, being glabrous and more robust. It is hardy and attractive. (*Flore des Serres*, 1147.)

2. Salvia Boliviana. Nat. Ord. *Labiatæ*.—Among upwards of four hundred species of Sages already known and described, it is not easy to discover whether such as approach very nearly to others are really distinct. This embarrassment is felt in connection with the present species. The plant is erect, rather branched, and attaining about eighteen inches high; the leaves are a lively green, cordate,

and rough. The branches are terminated by a cluster of six to ten flowers, carmine-red, each about an inch in length. The flower somewhat resembles a Cuphea in size and appearance, and is remarkable for the shortness of its upper lip. The calyx and pedicels are pubescent, and of a rufous purple. As the name implies, it is supposed to be a native of Bolivia. It promises to be a good bedding plant, from its dwarf, compact, and free-blooming habit. (*Flore des Serres*, 1148.)

3. **Bulbocodium vernum.** Nat. Ord. *Colchicaceæ.*—This old inhabitant of our gardens is found growing in the mountainous regions of Southern Europe, as Dauphiné, the Pyrenees, Switzerland, Spain, and Italy. It is, as the name would indicate, a spring-flowering bulb, differing in this respect from the Colchicums. The flowers appear to spring almost immediately from the ground, and are of a lively lilac. It is worthy of being more cultivated, although very old. (*Flore des Serres*, 1149.)

4. **Dianthus Sinensis,** *vars.* Nat. Ord. *Caryophylleæ.*—M. Van Houtte has given a plate of fifteen beautiful varieties of Indian Pinks, both single and double. This elegant plant was originally introduced from China to France about the commencement of the eighteenth century, and was first described by Tournefort, in the "Mémoires de l'Académie des Sciences," for the year 1705. Its introduction to England, according to Sweet, appears to have been delayed, however, until 1713. (*Flore des Serres*, 1150.)

5. **Wistaria frutescens,** *var.* **magnifica.** Nat. Ord. *Leguminosæ.* Syn. *Glycine frutescens.*—For more than a century before the introduction of the Glycine of China, Europe possessed the American species, now named *Wistaria frutescens*, of which the present is a hybrid variety, raised from seed by M. Delaville, sen., gardener near Clermont (Oise). The flowers are borne in graceful clusters, of a pale lilac, with a yellow spot. It is said to exceed others in the abundance of its bloom, which makes its appearance towards the close of June. The readiest method of propagating it is by grafting. (*Flore des Serres*, 1151.)

6. **Barbacenia,** *vars.* Nat. Ord *Vellozieæ.*—These varieties, six in number, were originated in the establishment of M. Van Houtte, and are the result of a cross between *B. purpurea* and *B. sanguinea.* They are much admired for the brilliant tints of carmine and purple which the flowers display. The habit is dwarf and neat, while their attraction is much heightened by the length of time during which they continue in bloom. They require a moderate temperature, and are propagated very readily from seed. We hope more attention may now be directed to the production of hybrids of this pretty genus. (*Flore des Serres*, 1152.)

7. **Colchicum variegatum.** Nat. Ord. *Colchicaceæ.* — The seventeenth century is noted for the great estimation in which flowering bulbs were held; without speaking of the passion for Tulips, it may suffice to say that if we inspect the works which appeared dur-

ing that century, treating of botany, and gardening, we shall perceive the prominence which is there given to many beautiful forms of Lilium, Iris, Colchicum, and other analogous plants which are comprised under the vague denomination of bulbs. One work, the "*Paradisi in sole paradisus terrestris;*" or, "A Garden of Pleasant Flowers," by John Parkinson, apothecary of London, will illustrate the fact. In this curious folio, published in 1629, we find figures of a considerable number of flowers at that time cultivated in English gardens. We there find figures of several species or varieties of Colchicums, which we do not see now even in the best gardens, public or private; among these the present species is described under the name of *Colchicum fritillaricum chiense*, the latter word indicating the locality whence it was supposed to originate, the isle of Scio, in the Greek Archipelago. It is, however, known to be equally common throughout the Levant. *C. variegatum*, the checkered Lilac, is an autumnal-flowering species, and at that time of the year is a great ornament of the parterre. It is probably the species which furnished the *Hermodact* bulbs, a medicinal article formerly of great repute, though at present less frequently employed, and it is doubtless the *Hermodactylos* of the Greeks and Arabians. An excellent figure appears in *Flore des Serres*, 1153.

8. Salvia splendens, *var.* Soucheti. Nat. Ord. *Labiatæ*. Syn. *L. Brasiliensis.*—This is is a very handsome Salvia, raised from seed at Paris, and is the type of the short, shrubby class. The flowers are numerous, bright orange-scarlet, an inch and a half in length, with calyces and peduncles of the same high colour. (*Flore des Serres*, 1154.)

9. Thalictrum anemonoides, *var.* flore pleno. Nat. Ord. *Ranunculaceæ.*—A very interesting little plant, perfectly hardy, a native of North America, and although introduced to British gardens so far back as 1768, through the instrumentality of Bartram, it is not so generally cultivated as it justly merits. In size and appearance the flowers, which are white, resemble those of a double Hepatica, and the foliage is remarkably neat; it is of compact habit, and grows about six inches high. (*Flore des Serres*, 1155.)

10. Leperiza latifolia. Nat. Ord. *Amaryllideæ.*—An ornamental bulb from South America, inhabiting woody, shaded places, in the Province of Tarma, Andes of Peru. It was first detected by Messrs. Ruiz and Pavon, by whom it was placed with the Pancratiums; but the learned author of the "Amaryllidaceæ" has founded on it the genus *Leperiza*, and at present it forms the only known species. Bulbs have been sent to Kew by John M'Lean, Esq., of Lima. The flowers are pendent, yellow, tipped with green, about two inches long, or, including the ovary, two and a half; the bulb is moderately large. The flowers appear early in September, and the plant requires greenhouse treatment. (*Bot. Mag.*, 4952.)

11. Castanea chrysophylla. Nat. Ord. *Cupuliferæ.*—This remarkable Chestnut was discovered by Mr. David Douglas, in 1830, near the great rapids of the Columbia (Oregon), and near Mount

Hood, in North-west America, where it grows on the hills. It has since been detected in California. One single plant, reared from seeds sent by Burke from the latter country, has vegetated at Kew, and may be seen in the Arboretum there, where it is now about five feet high. The young tree bears our severest winters perfectly unharmed. The under sides of the leaves are of a clear yellow, contrasting well with the deep green of the upper, and giving it a singular appearance. In its native habitat it forms a handsome tree, varying in height from twenty to seventy feet. The leaves are the smallest of any of the chestnut kind, being under three inches long, glabrous, and very dark green above; the golden hue of the under side, which has given rise to the specific name, arises from a multitude of minute scales. (*Bot. Mag.*, 4953.)

12. SINNINGIA YOUNGIANA. Nat. Ord. *Gesneriaceæ.* A cross between *Sinningia velutina* and *Ligeria* (Gloxinia) *speciosa*, raised some years ago by Mr. Marnock. The flowers, which resemble the Gloxinia in form, are solitary, two inches in length, pale purple or violet, the tube yellowish white at the base, and the throat spotted. The plant grows from a foot to eighteen inches high. (*Bot Mag.*, 4954.)

13. TRICYRTIS PILOSA. Nat Ord. *Uvularieæ.* Originally discovered by Dr. Wallich, at Sheopore and Chandagiry, in India; it has also been detected in Sikkim, by Drs. Hooker and Thomson, who sent seeds to Kew. The stems are herbaceous, a foot or more in height, branched, and nearly the whole plant covered with short hairs. The leaves are cordate-ovate, soft and downy; the flowers solitary, erect; sepals six in number, at first erect, then spreading out horizontally, of a whitish green colour, internally spotted with purple, the three outer ones provided with a large sac or pouch at the base. (*Bot. Mag.*, 4955.)

14. LINUM GRANDIFLORUM. Nat. Ord. *Lineæ.*—Lately introduced to European gardens from Algiers. The beauty of this annual needs but to be seen to be appreciated. It is said to do well out of doors in the open border, although the specimens we have seen were kept in a cool greenhouse, and bloomed in the month of August. It has been noticed in a previous number of this work, to which we refer our readers for its further history. (*Bot. Mag.*, 4956.)

15. MELASTOMA DENTICULATUM. Nat Ord. *Melastomaceæ.*—A moderately small shrub, a good deal branched, which latter are reddish and rough; the leaves handsome and large, dark green above and pale beneath. Flowers borne in small corymbs of five or six, petals nearly white, with a tinge of pink, an inch and a half across the flower. It is an inhabitant of New Caledonia, one of the South Sea Islands, where it was first discovered by Labillardiere. (*Bot. Mag.*, 4957.)

15. CYPRIPEDIUM LOWEI. Nat. Ord. *Orchidaceæ.*—A native of Borneo, being common in the neighbourhood of Sarawak, whence it was introduced in 1847. When found in its wild state it bears from eight to ten flowers on each stem. It is a very handsome species, the

lip being smooth, of a purplish green; the sepals green, with a purple tinge near the base; the petals are very long, being more than three inches, curving gracefully downwards, narrow towards the base, blotched with brown spots on a greenish yellow ground, and rose coloured at the ends, which are double the width of any other part. It is a very desirable acquisition, and of easy culture. (*Journ. Hort. Soc.*)

16. VERONICA SYRIACA. Nat. Ord. *Scrophularineæ.*—A new plant, well adapted for bedding purposes, of which seed has been received by Messrs. Henderson, Wellington Nursery, through Messrs. Ernst and Sprekelsen, of Hamburg. It is an annual of very dwarf habit, not attaining more than about eight inches, and bears abundance of flowers, the upper petals of which are of a beautiful intense blue, resembling that of the blue Gentiana, the lower ones white; it is very compact, the foliage ample, and of a fine green.

FLORICULTURAL OPERATIONS FOR JANUARY.

IN THE FLOWER GARDEN.

GENERAL OPERATIONS.—*Climbing Plants* against walls, trellises, etc., should be pruned and properly trained. *Composts* should be collected and well turned over during severe weather, in order to assist in mellowing and pulverizing them. Where good mellow loam is obtainable, it should be collected, taking care the turf be not cut away, the fibre being essential to good composts. Peat-soil should also be provided, with grass fibre in it, and put by in a dry place to decay. *Dead and withered leaves*, as well as plants killed by frost, remove. *Deciduous Shrubs*, plant; take care not to expose the roots to frosty air. *Edgings* of box, slate, and tiles may be laid, and old ones kept in good order. *Evergreens*, the hardier kinds, such as Laurels and Hollies, may be planted; water over the roots after planting, to settle the soil among the roots. *Grass*, roll and sweep; lawns may be turfed. *Hedges*, plant and trim. *Implements*, during wet and frosty weather see to all these, that they are in proper order for working. *Loam*, all flower-beds should have an addition of one-third, with some rotten manure and leaf-soil, a portion of the old soil being removed, so that the beds may not be too high, or they become dry in summer. The upper or central part of the bed, in which the most robust-growing plants are to be, should always be of the richest kind, to encourage the plants to grow rapidly at first, and the bottom portion being poorer, when the roots push into it, the growth of the foliage will be checked, and the bloom finer and more abundant. *Planting*, proceed with in favourable weather. *Plants out of bloom*, cut down and remove the stems. *Prune* such trees and shrubs as require it, be careful with evergreens. *Seedlings* and young plants require protection according to their hardiness and strength. *Seeds*, dress out during inclement weather; if they should have become in any degree damp, they must previously be placed in a room with a slow fire, and turned over for a day or two. *Stakes*, labels, and pegs, prepare for summer use. *Trenching* may be done to such ground as requires it, when weather permits. *Vermin*, rats, mice, slugs, etc., destroy whenever found. *Walks* should be attended to as to rolling, and kept clean. *Weeds* destroy everywhere. *Wheeling*, any operation requiring much use of the wheelbarrow should be done when the ground is rendered hard by frost, to avoid injury to walks, grass, etc.

CULTURAL DEPARTMENT.—*Anemones*, when planted in autumn, protect the beds with dry leaves or mats, to keep them from drenching rains or severe frosts. In forming beds proceed as for Ranunculuses. They may yet be planted in dry weather. *Annuals* sown in autumn must be kept free from falling leaves, or other litter, likely to rot them. At the close of the month a few more may be sown for succession. *Bulbs*, protect beds of; if the embryo flowers or leaves should be affected by frost, even when in the ground, their blossoms will be defective. When grown in glasses, they require to be placed in an airy and light situation when coming into bloom; the water should be changed three or four times a week. *Carnations and Picotees*, when they are likely to be attacked by hares and rabbits, sprinkle the plants with soot, and it will preserve them; prepare compost for the show plants, by turning it often, and keep it from snow. *Chrysanthemums* should have a slight protection of leaves, etc., to guard from frost. *Dahlias*, the dry roots should be examined to see that they are keeping soundly, or where decayed dress off. Trench the ground for them next season, which may be thrown up rough till time for planting out. *Pansies* should be protected from winds, by having a hedge of fir branches stuck round the beds; prick a few twigs amongst the plants, to prevent their being twisted. The surface soil should be stirred occasionally, to admit air and moisture; see that it be not withdrawn away from the stems. In open weather give a top-dressing of decayed leaves and a little soot. *Pinks*, after frost, press the soil around the stems, or they may be laid bare. *Ranunculuses*, autumn-planted beds of, must be protected from frost. Where the beds are not yet made for spring planting commence without delay; throw out the soil half a yard deep, in order to sweeten it for the proper formation and planting. The beds must be made of loam and well-rotted manure, thoroughly mixed *Roses*, protect the heads of tender kinds by dried fern or spruce-fir branches. Plant or remove immediately, if not already done, or they will not bloom this season. Sprinkle freely overhead with soot and lime-water, to destroy moss or insects; secure standards to stakes, and see to their labels. *Shrubs*, hardy deciduous, cuttings may now be put in, pressing the soil firmly around them; these should be cut off close below a bud. Layers of evergreen privet and others may now be made. Evergreens can be removed, but autumn planting is recommended.

IN THE GREENHOUSE, COLD-PIT, AND FRAME.

General Operations.—*Air*, give abundance on all mild occasions, especially to Heaths and New Holland plants. Whenever the weather is damp or foggy, it is advisable to give circulation to the air in the house by means of a little fire; this is a great advantage to the health of the plants. *Cold-pits* should have the floor covered with coal-tar and sand incorporated, and at a sufficient slope to allow water to run off quickly. Porous materials cause damp. *Coverings*, straw or fern, protected by a single mat over it, to prevent its blowing about, is cheaper and more effective than three or four mats laid close over each other; sufficient should be provided for all occasions. *Cuttings* will be found to root better early in the season than at an earlier period. *Decayed Leaves*, plants should be looked over and all decaying foliage removed. *Mildew*, guard against this by a timely application of sulphur. *Prune* all climbing plants which produce flowers on the young wood, if not previously done. *Water*, it is always advisable at this period to administer this in the early part of the day, that the damp may dry up. The heat maintained this month in the greenhouse, where few hard-wooded plants are grown, should be about 45° at night and 55° by day.

Cultural Department. In the Cold-pit and Frame.—*Alpines*, in fine weather, will require plenty of air. If very severe, a few dry leaves or fern will be a protection; uncover whenever weather permits. Little water is necessary at this dormant season; give it to those only which seem to be drooping. Remove decayed foliage. *Annuals, hardy*, if omitted in the open border in autumn, a few may be sown in pots, and placed in a frame free from frost, ready to turn out in April. *Antirrhinums*, allow all dry air possible, to prevent them from prematurely running to bloom; dress off decayed leaves. *Auriculas* require abundance of air when dry weather, only save them from frost and drying harsh winds, also excess of water. Sow seed early in pans, in a compost of leaf-soil and silver sand, sifted fine, allowing plenty of drainage; cover very thinly, and place in a shady part of a cold-pit. *Carnations and Picotees*, supply liberally with air; if attacked by mildew, dust well over with sulphur; should any leaves show spots remove the plants immediately. Protect from frost and excess of wet. *Chrysanthemums*, admit air freely, in order to strengthen the shoots for cuttings in April. *Dahlias*, to propagate early, put the roots in pots, or place them where they can have bottom heat, which will soon cause them to produce shoots for cuttings. Sow seed in light rich soil in pans, and place in a hotbed; careful attention must be given to keep the surface just moist. If not already done, trench the ground for plants in May. *Gladioluses*, to succeed the autumn planted, may be potted and placed in a frame until vegetated. *Hollyhocks*, cuttings may be made of any spare young shoots from the old roots, place singly in small pots; in a gentle heat they will soon root. Plants in pots must be kept from excess of damp, and give all air possible, to prevent their being drawn up. If allowed to become too dry they often die. *Lobelias*, erect growing, mind they do not rot off from excess of wet; towards the end of the month place in a warm situation, and encourage offsets to grow, in order to divide and pot off singly next month. *Polyanthuses* in pots, during winter, must have all the air possible, but kept from frost and excess of wet in the centres. Stir the surface soil and keep the entire of it moist, but not too wet. Care, too, must be taken to keep free from slugs and snails. Sow seed in pans as for Auriculas. *Ranunculuses* planted in pots, place in the frame to bloom in April. *Stocks, Ten Weeks', Russian, and Prussian*, to bloom early should be sown at the end of the month in pots, and placed in a hotbed frame, or sown upon a gentle hotbed. *Succulents*, admit air to, and water sparingly. *Tender plants* in pots, in frames, require frequent attention, in order not to allow any decayed foliage, or they will be liable to rot off; water sparingly, stir the soil and top-dress them. *Verbenas* must have plenty of dry air admitted; guard against mildew and damp. To increase stock, place some of the finest plants in a hotbed to push the shoots. Stop such as are growing weakly. *Violets* that have been protected through the winter will now produce plenty of bloom; keep them free from decayed foliage and give all air possible, or they will grow weak.

IN THE GREENHOUSE.—*Annuals, half-hardy*, seed of Cockscombs, Globe Amaranthus, Schizanthus, etc., should be sown in pots, and placed in a gentle heat. *Calceolarias*, pot off seedlings in pans; repot young plants, fumigate, water when required, not wetting the foliage; stir the surface soil and remove dead leaves. *Camellias*, in bud, apply liquid manure; if allowed to become dry the flower-buds will drop off. *Cinerarias*, repot, and supply manure-water occasionally, also fumigate. *Ericas* must have free and dry air; do not allow to become too dry. *Fuchsias*, large plants now placed in heat will soon push, to strike new stock from, for summer bloom. *Pelargoniums*, repot for blooming in May and June; remove withered leaves, and fumigate. *Roses* in pots, prune and trim for bloom in April, May, and June, top-dress with rich compost; give a temperature of 45° at night, rising 10° in the day, *Shrubs*, such as Roses, Persian Lilacs, Deutzias, Jasmines, Azaleas, Ribes, etc., should be introduced from the forcing-house and placed in a warm situation. *Tropæolums*, as Jaratti, Tricolorum, Speciosum, and Azureum, should be potted.

IN THE STOVE.

GENERAL OPERATIONS.—*Bark beds*, turn and add fresh tan, to renew the heat. *Climbers*, attend to tying to the trellis such as have commenced their growth. *Heat* should not be allowed to get too high, about 55° at night and 65° by day are the extremes. If higher, the plants will become weakly and the leaves sickly, from over-excitement and want of light. *Leaves*, sponge all plants with large foliage, to remove insects and dust. *Seeds*, sow at the beginning of the month; be careful notto over-water them; those with hard shells should be steeped in water, at the temperature of about 170°, in which they may be left until the water cools. *Surface soil* in pots should be stirred and kept clear of weeds, and a little new compost added for a top-dressing.

CULTURAL DEPARTMENT.—*Achimenes*, with other plants of like habit, as *Gloxinias*, *Gesnerias*, etc., pot a few more to succeed those of last month; water sparingly until they push. *Allamandas*, if for early bloom, start them by plunging in bottom heat. *Eranthemums*, and other winter-flowering plants, may have a little manure-water occasionally. *Ixoras*, if plunged in tan, will bloom early. *Plants for forcing*, comprising Azaleas, Deutzias, Persian Lilacs, Ribes, Rhododendrons, Roses, etc., may be forwarded by plunging in a gentle bottom heat; when bloom-buds appear remove to a warmer house, and place near the glass, occasionally syringing. Similar treatment may be pursued with Dielytra spectabilis, Hyacinths, Lily of the Valley, Narcissuses, Tulips, and other plants for house decoration.

QUESTIONS, ANSWERS, AND REMARKS.

Mistletoe.—I should be very much obliged if you or any of your readers could inform me what is the best method of propagating Mistletoe. None grows in this immediate neighbourhood, but I have twice, during the months of January and February, placed some of the seeds in cracks of bark on Thorns and other trees, but have never found them vegetate. I should be glad of any information on the subject.—*Mistletoe, W. S.* [The most successful plan we know of is to get some ripe berries, cut the bark on the *under side* of the branch of an old apple tree, in the shape of the letter V, raise the tongue of bark, and insert a seed, which should not be pressed very hard by the bark, but just sufficient to retain it. A few seeds thus inserted in an old apple tree will scarcely fail to "take."—Ed.]

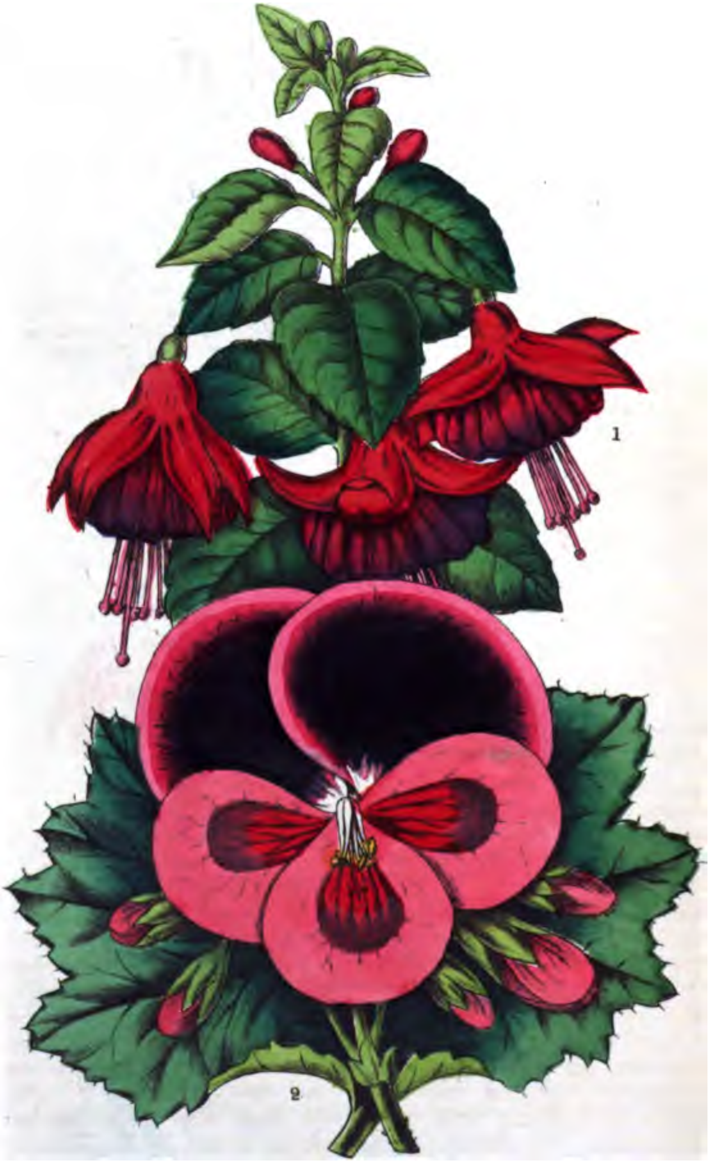
Seedling Pansies.—Having saved a quantity of seed last season from some of the best show Pansies, I should be obliged to the Editor of the *Cabinet* if he would give me a few hints on the best time of sowing it, and how I am to treat the young plants.—*E. P. D., Liverpool.* [When seed is saved early in the season and is quite ripe, it is advisable to sow it as soon as gathered; but if later than the middle of August, it is better kept until the following February, when it should be sown in a gentle heat. When the seedlings have made two or three sets of leaves, they should be pricked out on a shady border of good loam, where they will bloom freely in May and June. When in bloom the best formed and most distinct flowers should be transplanted and propagated, when the weather permits.—Ed.]

Cypripedium Calceolus.—I have long been in possession of *Cypripedium Calceolus;* it grows and flowers well (in June) in my garden, in a moist and shady situation, in a yellow loam. It is a native of Castle Eden Dean, in this county, but rare; I obtained it from thence. It is described at some length in the "Annals of Horticulture" for 1850, page 505, but this locality is not mentioned. I subjoin extracts relating to it from the "Transactions of the Tyneside Naturalists' Field Club," a Society which meets literally in the fields in summer, and review at intervals different districts for botanical purposes; they appoint each year one of their number as president, who at the close gives a lecture recapitulating their observations, and discoveries, if any. "It is unnecessary for me to dwell long on the beauties of a place so well known for its picturesque situation, and the numbers of rare plants it produces, as Castle Eden Dean. It is sufficient to say that when we explored it this year, all the scarce plants formerly known to grow there were seen by some one of our party, especially the rare and conspicuous *Cypripedium Calceolus*, or Lady's Slipper."—1848. "Four plants, each bearing two flowers of this pride of our northern flora were seen, but as we consider it a great treasure, and in compliance with the excellent rule of our Club, which pledges its members to prevent as far as possible the extirpation of rare species, they were left undisturbed."—*Transactions of the T. N. F. Club, vol. i. page* 213. At the anniversary meeting, 1853, it is again mentioned. "At Castle Eden Dean we still have the Lady's Slipper (I prefer the English name). It is not found elsewhere, and is becoming scarce here, from persons misappropriating what they can neither preserve nor enjoy, by vainly endeavouring to propagate in other soils plants which will only grow and flourish in their own."—*Vol. ii, page* 291. This is not exactly true, as nothing can do better than the Cypripedium in my garden, in a congenial situation; it would not flower in the common borders. From the address read to the members of the Tyneside Naturalists' Field Club, May 15th, 1856, by the owner of Castle Eden Dean, we read, "The Lady's Slipper is now so nearly extinct, that I vainly endeavoured to exhibit a native specimen of it to this Society when they last botanised the Dean in 1854. The Fly and Birdsnest Orchids have likewise been taken up, and are not likely to survive long when thus transplanted, nor are they sufficiently numerous not to bear the risk of extirpation. I must appeal to this Society to support me in preventing the offence of tearing plants from their native habitats, where alone they flourish, and delight the scientific observer, and place them to wither, in gardens, or pine, in rockwork or under glass shades." I have known half a guinea offered for a dried specimen of the *Cypripedium Calceolus.*—*F. E., County Durham.*

Cypripedium Calceolus at Ingleborough.—Since writing the above, I have received a communication from a friend residing at Ingleborough, in Yorkshire, and which you will oblige me by inserting for the information of your Sheffield correspondent:—"In reply to your inquiries about the Lady's Slipper, it used to grow in our woods, and others around, but those mischievous botanists who dig up rare plants for sale, have quite exterminated it, and we do not know of its being wild now in our country, though it thrives pretty well in gardens. I have heard, within the last two years, of roots being sold for two or three guineas."—*F. E.*, *County Durham.*

LONDON HORTICULTURAL SOCIETY'S MEETING, NOV. 25TH.—The first general meeting under the new council took place this day, when thirty-four new members were admitted by ballot, J. Blandy, Esq., in the chair; the attendance of members and friends was a very full one, and promises well for the Society under its new organization. Among the good things worthy of notice in our pages were the following: a new hardy Coltsfoot (*Tussilago*), from Java, by Mr. Glendenning, with large, shining green leaves, blotched with white; this will prove a valuable acquisition. Messrs. E. G. Henderson, of Wellington Road, sent a collection of specimens in all-sized pots of that exquisite little variegated plant Sonerila margaritacea, all in full bloom, the pink blossoms, borne in abundance, contrasted well with the spotted leaves; Liparis longipes, with long drooping spikes of flowers, somewhat resembling those of Mignonette—this was the first specimen exhibited; Exacum Zeylanicum, with its lovely blue flowers; Ardisia crispa, var. Sieboldii; and cut blooms of new hybrid Bouvardias, of considerable merit. Mr. Veitch had a new species of Adhatoda or Justicia, of which we were unable to ascertain the native country, the flowers were violet, with a deep blue lip. Messrs. Jackson, of Kingston, exhibited a nice collection of Orchids, Lycopods, and Ferns. From Mr. Woolly, gardener to H. B. Ker, Esq., came the finest specimen of Calanthe vestita, we ever saw, a complete mass of beauty. H. Long, Esq., of Farnham, contributed a branch Abies Cephalonica, with cones, the first produced in this country. Mr. Mant, of Bristol, sent cut blooms of the handsome Vanda cærulea, and Mr. Veitch, of the exquisite Lapageria rosea. R. Warner, Esq., Broomfield, near Chelmsford, forwarded two neat Alpine Orchids, Cattleya Walkeri and Sophronitis grandiflora. There were also two good collections of Minima or Pompone Chrysanthemums.

THE HORTICULTURAL SOCIETY.—The following are the new regulations respecting the admission and privileges of Fellows, as they are now described in the official circular of the Society. *Payments.*—The annual contributions to be paid by the Fellows are either four guineas or two guineas, as they may determine when elected. All annual contributions become due and payable on the day of the anniversary meeting in each year for the year following. Every person who shall cease to be a Fellow of the Society, or whose payments shall have been suspended as herein provided, after the 1st day of May in any year, is liable to the payment of his subscription for that year. *Privileges.*—The Fellows of the Society are entitled to the following rights and privileges: if paying four guineas a year, to participate in the distribution of plants and seeds from the garden, and to hold a transferable ivory ticket, which gives the bearer all the personal privileges of the Fellow, except attendance at special general meetings of the Society held for the transaction of corporation business. If paying two guineas a year, to participate in the distribution of seeds and cuttings in London. And also whatever the rate of payment may be, to be present and vote at all general meetings; to introduce visitors at the ordinary general meetings of the Society; to have access to the library and other public rooms of the Society, and there to consult the printed books, plates, and drawings belonging to the Society; to have personal admission, and to introduce personally, or by order, visitors to the garden of the Society; to receive gratis such publications of the Society as may appear during the time they continue to be Fellows; to purchase, at a reduced price, tickets for special Exhibitions, with such limitation and under such regulations as the council may from time to time direct. *Ladies.*—Every lady, Fellow of the Society, may appoint any gentleman, being a Fellow of the Society, to vote for her at the general meetings of the Society, upon the production of a proxy, which shall not be changed more than once in each year. If any lady, Fellow of the Society, is the wife of any person not a Fellow of the Society, he will not be entitled in her right to any of the rights or privileges of a Fellow, but she will, so long as she continues to conform to the regulations of the Society, contimue to enjoy separately all her rights and privileges as a Fellow of the Society.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The Floricultural Cabinet.

FEBRUARY, 1857.

ILLUSTRATIONS.

1. FUCHSIA GLOBOSA, VAR. RANUNCULIFLORA PLENA.

WE present our readers with a coloured representation of the very interesting hybrid Fuchsia raised by M. Coene, of Ghent, and named appropriately *Ranunculiflora plena*—the corolla being remarkably double, or full of petals compactly placed together. The tube is short, and the sepals, when fully expanded, turn back, freely exposing the numerous bright purple-crimson petals. In habit it much resembles that of the old *globosa*, and is very free flowering. Those who are fond of this handsome tribe will do well to procure this variety, it being the first really double Fuchsia that has come under our notice. We believe M. Van Houtte has the stock.

2. PELARGONIUM LA BELLE ALLIANCE.

For many years there has been a steady progress in the Pelargonium, in perfection of form, size, and texture, as well as in colour. The attention which has been devoted to this plant by such successful growers as Messrs. Hoyle, Foster, Ambrose, Turner, and Fouquet, in our country, and MM. Odier and Miellez, in France, has been rewarded by the production of varieties possessing much excellence, not only in the form and outline of the class known as "show flowers," but also in the markings and colour of the attractive "fancy class." We believe, however, that much more remains to be accomplished, and we would impress upon florists the desirability of renewed attempts to reach the "standard of perfection," and more especially to aim at obtaining greater variety in colouring, in which much is yet to be achieved. We hope in the ensuing season to find improvement still farther carried out, and would urge upon Societies the duty of offering more inducements to good cultivation, and the origination of other varieties approaching still nearer the *beau idéal* of a first-rate Pelargonium. The variety now figured was raised by Mr. Fouquet, and possesses several excellent qualities: the form is fine, the centre pure white, upper petals having a rich maroon blotch, shading off to scarlet, and edged with clear pink; the lower ones salmon-rose, with an intense orange-crimson spot—a variety which should figure in every good collection.

ON PROPAGATING PLANTS BY CUTTINGS.

BY MR. HENRY DYER.

AS a general rule, those plants which are soft wooded, and elaborate a quantity of sap, strike root from cuttings with comparative readiness—of this class are Fuchsias, Dahlias, Pelargoniums, Petunias, etc. Plants of a hard-wooded nature are more difficult to strike, as Ericas and Epacrises. The general directions for propagating by means of cuttings are to insert them in sand, within the rim of a pot, and cover them with a bell-glass, until they have made some little root; and this may be taken as a precautionary method with such plants as are of the more difficult class. Cuttings are sometimes directed to be made of the old wood, and others of the young and tender new wood; in general, however, the safest plan is to take off the cutting at that point where the young wood is united to the old, so that a small portion of that of the previous year's growth may remain attached to it. The shoot should be cut off with a clean cut, for if ragged many will not grow; and sandy soil is beneficial as ensuring drainage, for cuttings rot, or "damp off," if stagnant water be permitted to accumulate round them. When inserted, the earth must be made firm round the lower end, for an empty space left below it will cause it to wither. Shoots of such plants as are soft wooded and strike readily may be cut up into several cuttings, all of which will grow; but of hard-wooded plants, the general rule is to take only one cutting from a shoot, which must be taken from the tip. Healthy shoots of moderate strength are to be preferred to those that are very strong or very weakly, and if only leaf-buds on them, are better than flower-buds. Bottom heat is afforded to some cuttings which are hard to strike, and the stimulus given by the heat induces them to throw out roots; this is absolutely essential with many plants. The heat must be carefully regulated however, so that it be not too hot, or the roots would be destroyed as soon as produced. Several ingenious plans for striking cuttings have been recommended by various gardening authorities. One, by Mr. Forsyth, is as follows. Take a wide-mouthed forty-eight pot, fill it up about one-third with crocks (broken pots), in the usual manner; then take a small wide-mouthed sixty, stopping up the hole with clay, and place it within the larger pot, filling up all round with sand, or other soil, and put in the cuttings in contact with the outer rim of the small pot; the latter is then filled with water, and the whole plunged in a hotbed or in the ground, as the nature of the cuttings requires, and may be covered with a bell-glass, which rests close within the rim of the larger pot. Another plan is to have a small pot turned bottom upwards inside a larger one, as a sixty within a thirty-two, filling the space to the top of the smaller pot with gravel or crocks, over this a layer of moss or peat soil, and filling up with sand. This is a very successful plan with such plants as are apt to damp off with too much moisture.

Plants requiring different methods of treatment in propagation by cuttings may be divided into the following classes: soft-wooded greenhouse plants, hard-wooded green house plants, Heath-like plants, stove plants, succulents, and plants requiring to be increased by cuttings of the roots. The first class, which comprises the Dahlias, Pelargoniums, Verbenas, Fuchsias, Maurandias, Tropæolums, etc., may have cuttings taken off in spring, or at any period through the summer; they may be struck in sand, or sandy soil, with or without a bell-glass over them, and either in bottom heat or not, as circumstances permit, or may render it desirable. Such are the easiest of all cuttings to strike; they are prepared by cutting them across cleanly, and immediately below a joint, trimming off the leaves as far as it is inserted in the sand; the lower end being inserted, the sand is pressed firmly round them, and they are placed in an appropriate situation, where they must be kept in the shade, and in a gentle and uniform condition as to moisture, until they have begun to make roots, when they may be potted off. During summer such cuttings may be put in out of doors in the free soil, at other times they require pots, in order to their being placed in a pit or house, where they may receive the necessary protection from the weather which they require.

Greenhouse plants that belong to the hard-wooded class, as Acacias, Cape and Australian shrubs, Camellias, and Myrtles, and other things with comparatively broad leaves, are rather more difficult to strike than the above; the soil best suited to them is such as contains a large proportion of sand, and the pots require plenty of drainage. After the spring growth is completed, and yet before the young wood has had time to fully ripen, cuttings must be made of the extremities of the shoots. If the plants have made their growth by March, and cuttings are then put in, they will be ready for potting off in summer; it is customary to cover them with either a hand or bell glass. In order to have cuttings ready at this time, the plan of forwarding the shoots, by taking the plants into the hothouse from the greenhouse, in January, is adopted, and they are hardened off again before the cuttings are put in, by removing them back to the greenhouse. If cuttings of this class are put in in autumn, they seldom root before spring, and have to be kept under glass through the winter.

Heath-like plants, as Ericas, Epacrises, etc., belong to a class the most difficult to strike by this means. Cuttings are taken off in spring, and are made of the extremities, and, to ensure success, should not be more than an inch in length; they must be cut clean off at a joint, and the leaves dressed off the lower end for about half an inch. They are struck in pure silver sand, with a sub-layer of peat, and well drained; they require bell-glasses, which must be frequently taken off and wiped, to prevent damping off; the cuttings must be placed near the glass in a pit, where they may be shaded. The best time for increasing Ericas is in December, and the shorter the shank of the cutting the less is the probability of their perishing by damp, and the quicker they root. Unless the cut is made very even, and care be taken to avoid lacerating the bark, moisture will enter and the cutting be destroyed. This, I believe, is the reason why so few succeed in striking Heaths well. The pots containing them may be placed in a pit, or on a shelf in the greenhouse, as near the glass as convenient, and where they may have a temperature of about sixty degrees. Attention must be given immediately to remove such as fail or rot, as one will infect the whole in the pot. The majority will have taken hold of the soil by February or March, when they may be transferred carefully into thumb-pots, in finely sifted peat and a good proportion of silver sand, the pots being about half filled with drainage materials, and the plants placed rather high in the pots. Their after management does not come within the limits of this communication, and I hasten to the consideration of the class of stove plants, cuttings of which generally require to be put in the same soil as the parent plant grows in, and plunged in a gentle bottom heat, under bell-glasses. A few plants of this description, however, require silver sand, without bottom heat. Some of the larger-growing species make very large cuttings, which must therefore never be allowed to droop or flag, in which case they receive an unfavourable check.

Cuttings of succulents, as Euphorbias, Crassulas, and Mesembryanthemums, and the Cactus tribe, should be laid by for a day or two after they are cut off, to dry the stump, and then planted in a mixture composed of sand, brick rubbish, and peat; the pots must be well drained, and placed on a shelf in a warm greenhouse. When watered, the supply should be small; indeed, many require no water until after they are rooted.

Propagation by cuttings of the root is necessary in the case of many plants, as Acacias and Roses; the roots chosen should not be less than a quarter of an inch in thickness, planted with their tops barely above the surface of the soil, and, where necessary, plunged in a gentle bottom heat; in a few weeks buds will be formed, and plants established in much less time than by any other plan. Hardy plants may be put in a light rich soil, and be kept moist, under a wall or in any other shaded situation which may offer.

For the convenience of amateurs and others who have not the convenience of a greenhouse or pit, some ingenious little contrivances have been effected, as in Walton's propagating case, where we have a box of convenient dimensions, roofed with glass, and glass ends, like a miniature pit, heated from a zinc box containing water over the flame of a small lamp or gas-light. These may be constructed for a few shillings, and heated for a few pence weekly, and are sufficient to hold three or four rows of forty-eight-sized pots, and three rows of sixty-sized, of six and eight in a row respectively. In these the amateur may successfully propagate, at small expense, many pretty plants which otherwise would be almost beyond his means.

THE ROSE GARDEN.

BY G. G.

TWO thousand years have well-nigh elapsed since the Greek poet Sappho immortalised the Rose, when she wrote "Jupiter wishing to give to the flowers a queen, his choice fell on the Rose;" and from that time to the present there is scarcely one of the great bards who has not in some way or other sung its sweet charms. A collection of poetic allusions to this royal flower would form an interesting volume, but at present I have chosen for my theme a more practical one, purposing to make a few remarks concerning the most approved method of forming a Rosarium, or, as it is more popularly termed, a Rose garden, and on the planting of Roses.

The situation of a Rose garden must be one open to the sun or freely exposed to the south, and removed from the shade of trees, where a free circulation of pure air may be had; and for this reason Roses never do well in the close neighbourhood of smoky towns or cities, where the atmosphere is so impregnated with particles of carbon, sulphur, and acid products, that the "lungs" of the plants are certain to be stopped up thereby. Although the situation requires to be open to the sun, yet it must be one screened from the wind; perhaps the best place for such a purpose would be a gentle hollow, surrounded north, east, and west by rising grounds, and next to this a tract sloping off towards the south; the first, however, is preferable, as being more secured from cold winds, and the plants are viewed to greater advantage from the high ground. Should the place be naturally moist, however, it will require draining, or nothing will be made of the Roses. Where such natural advantages as the foregoing are not available, we must be content with a level surface, and protection against wind may be afforded by surrounding the whole with a dwarf shrubbery, excluding from the south, east, and west such tall-growing shrubs or trees as are calculated to throw an injurious shade over the chosen area. The north side may have a wall, which, if not objectionable, made be made use of for training many tender kinds, that would not do well without this protection. The beds should be arranged in the geometrical style, with gravel walks between, and stone, slate, or box edgings. Grass walks are generally objectionable, and, unless the Rosarium is extensive, should never be introduced; the beds ought not to be too broad, seven feet being a convenient width for these, as it permits each plant being easily examined, without the necessity of treading over the soil, which not only consolidates the soil, but always looks untidy. The Roses being generally budded on stems of various heights, have more or less an artificial or studied appearance, and being, moreover, florists' flowers, the geometrical or artificial style harmonises better than the natural, and, where a view over the whole from a higher situation may be had, looks more pleasing than any other, especially where a garden is devoted to the growth of a genus. Of all outlines I think the circular is to be preferred; and if your talented friend Mr. Rutger were to oblige us with a few of his original designs for this purpose, I believe they would be very acceptable to florists generally. When the Rosarium is to be laid out, and the site is determined on, let it be well drained; but this should be efficiently done, so that the drainage be not soon choked up, and the whole have to be gone over again, sooner or later, as is too often the case where slovenly drainage is laid down. As to the soil, application of manure, etc., I need say little, it being, or should be, so generally known by gardeners that good loam, well manured, is most suitable for the generality. Before planting, when this can be done, it is an advantage to form the holes and throw up the mould, to pulverize by the action of frost, during the mid-winter months; these holes should be three feet in diameter, and two feet deep, where space permits, but if limited, two feet across will do very well. It is too frequently the practice to form a hole scarcely sufficient to receive the roots, which are thrust into them, and often in poor wet soil, or one of too sandy a nature; who would expect a good bloom under such circumstances? The plants should be classified, and each group may have one or more beds devoted to itself; for instance, Hybrid Perpetuals may occupy several beds, and Mosses may be in the smaller beds, at intervals between; and so of the rest. The taller plants should occupy the centre of the beds, gradually diminishing in height to the outside; the most convenient height for the taller plants is about three and a half feet in the stem. Tall standards of five or six feet in height may be placed in small circular beds, one in each, on the grass verges outside the whole, fastened to neat iron stakes, and will add much to the general effect. All the tall standards should be attended to in respect to staking, to prevent their heads being twisted by wind, and to preserve their form and perpendicular. If the garden be of limited dimensions, the beds ought to be proportionally smaller, and the tallest standards not more than three feet high in the stem, nothing looking worse than very tall plants in a small garden, unless they be placed in the centre of a circular plan, or towards the angles of a square or rectangular design. As a means for producing good effect, it is desirable to have pillars with trellis-work, for climbers and pillar

Roses; such things, when nicely designed and neatly put up, make a charming appearance covered by the plants in full bloom: the height of the pillars may be from twelve to fifteen feet. Or, if preferred, they can be festooned, by having a strong wire gracefully hung from pillar to pillar, to which the Roses may be trained. The choice of sorts should be select at all times, but this is more than ever desirable where the number of plants is limited; and I would strongly urge the amateur to rely more upon a sight of the Roses in bloom than a catalogue for the selection of his kinds. Any one about to form a Rosarium cannot do better than pay a visit to the extensive collection of Messrs. Lane, of Great Berkhampstead, or to Mr. Wilkinson, of Ealing, during the blooming season, and he will not only be enabled to make a good choice, and ensure distinctness, together with other good qualities, but will be highly gratified by the display of bloom which he will be sure to meet with.

REMINISCENCES OF GARDENS.

BY RISCEMARA.

ICICLES are hanging outside my windows, and scarcely a flower, except the *Jasminum nudiflorum* and Christmas Rose, is to be seen in the garden; so I am disposed to recall some of the horticultural enjoyments I have had in the preceding year, and leave the Editor of the *Floricultural Cabinet* to decide if their record is worthy of his notice. The first object of especial interest I would allude to was the great pleasure I experienced, in that month which is said to come in like a lion and go out like a lamb (but last year this saying was reversed), to perceive on our *Pawlonia imperialis* at least twenty-five sprays showing flower-buds near their ends; some were as large as filberts, and appeared likely to expand, but the weather becoming much colder as the season advanced, the small ones shrank up, the larger became crisp, and no bloom ensued: our gardener said he had observed a similar promise in the preceding spring. As a greenhouse plant, I would highly recommend *Calceolaria Violacea;* its numerous delicately spotted flowers and its elegant little leaves rendered it an object of admiration, and it is rarely seen in collections. *Tulipa cornuta* bore a curious flower, its bright-coloured narrow petals, about five inches long, and tapering to a point, rendered it a distinct variety of that showy tribe. In the garden, at this early period, the abundant blossoms of the *Forsythia viridissima*, before the leaves appeared, rendered the shrub a great acquisition. The long corridor at the Sydenham Palace was very interesting, from one side of it being lined with flowering Rhododendrons—some of a carmine tinge were very attractive; and the numerous trees and shrubs in pots, in the large house, with such a wonderful variety of foliage, were quite a study to inspect. At Kew, the remarkable *Hakea conchifolia* excited attention; it is (like the *Erica nivea*, whose flowers resemble small tufts of snow) truly named, and dissimilar to other plants. The new brilliant *Corræa*, and *Acacia celastrifolia* and *rotundifolia* were beautiful. The spacious Aloe-house contained many objects tempting us to linger; for the first time, I saw there in blossom *Euphorbium tetragonum*, long known to me as *Cereus tetragonus;* its many small bright yellow flowers clustered near each other gave it a cheerful effect. After seeing the arrangement of the grounds at Sydenham and Kew, it was refreshing to wander in the mazy walks of the Zoological Gardens, and to inspect the living sea-weeds, etc. I hope that those who appreciate the wonderful works of our Divine Creator will not neglect to vist this attractive place. In the season of Rhododendron flowers I was gratified by the large collection in the romantic grounds of Hoe Mill; some were [tree-like and beautifully marked—one, called *Tigrinum*, was deeply spotted—and near them grew the rich-looking *Thuja aurea.*

In the early summer, in a gentleman's conservatory at Wisbeach, I was much pleased with a fine assortment of the French Pelargoniums, their deep-coloured marks rendering them distinct varieties from those previously grown. A species of *Eucomis* had flower-stems about five feet high, far down which white blossoms descended—the pot containing the root was comparatively small; one plant had two long flowering stalks, far surpassing in beauty and size the well-known *Eucomis punctata.* The grand *Imantophyllum miniatum* had been there in vigorous bloom, in the early season. These bulbs, with many others, were presented by the late Dr. Stanger, who died at Natal, some of whose near relatives reside in the town; he was one of the few survivors of the Niger expedition, and was distinguished for his scientific researches. It is gratifying to learn that there is a plant, no doubt from Natal, named after him, viz., *Stangeria paradoxa.*

Far away from our eastern counties, in the grounds of a gentleman, of whose elegant clock-tower a distant view is obtained near the Stanningley station, I visited a delightful fernery. You open a wooden door, observing no glass, and, little suspecting what to see, are startled to find yourself in a sort of grotto, from the sides of which rare Ferns, planted in picturesque pieces of wood, are drooping. The golden and silver Ferns truly deserved their English appellations, their Latin names are *Gymnogramma, Chrysophylla*, and *Tartarea;* the applicability of the latter word is not apparent. *Polypodium umbrosum* and *azureum*, with the *Lycopodium Wildenovii* and *Polypodium Cambricum*, were conspicuous, also *Asplenium, Odontitis*, and *Viviparum;* the latter resembled a dwarf *Equisetum*, with fern-like fronds scattered over it. *Adiantum formosum* had pale green drooping leaves; *Bleehnum Brasiliense* was much indented. A small specimen with delicate fronds was familiarly called the Artillery Plant, as, when water was applied to certain parts of it, an effect resembling steam was produced. One Fern had a stem more than a yard long; it gracefully waved above a reservoir, in which gold fish were swimming. In the conservatory *Begonia maculata*, having tufts of delicate silky fibres under its leaves, was quite a curiosity, as was the elegant *Centradenia rosea*, with a shaded purple tinge on its leaves, and little pink flowers. A species of *Habrothamnus* claimed attention, from its pink blossoms being abundantly clustered at short intervals round its drooping branches. The Pampas Grass had flowered there the preceding autumn; its head had been preserved, and reminded me of the tail of a bird of paradise. At the Rodney Nursery, the beautiful Fuchsia with a white corolla was new to me, and in the garden were some rather tall, showy, white Lilies, resembling the Martagon in shape.

I am now in imagination rambling about the picturesque ruins of St. Osyth's Priory, in Essex, inspecting, amongst many fine trees, the ancient Lombardy Poplar brought from Italy some years since, by Lord Rochford, and from which it is said most of those grown in various parts of England originated. It is considered to be above seventy feet high. In the lofty conservatory, placed in a flower garden surrounded by high antique walls, was a Fuchsia about eleven feet high, and a fine specimen of a Hardenbergia.

Visiting, late in the year, the pleasant village of Sonning, in Berkshire (interesting for the many lofty Elms and other trees in its verdant park, its numerous wild flowers, and picturesque walks by the side of the Thames), in the garden of the old Manor House I was surprised by the beauty of the double white *Petunia imperialis*—it reminded me of a Picotee; from its perfectly shaped blossoms and their rich whiteness, it is an acquisition to our gardens, and is probably the precursor of other desirable double varieties of that favourite plant.

A DESCRIPTIVE LIST OF THIRTY OF THE BEST NEW DAHLIAS.

BY THE FOREMAN OF A LONDON NURSERY.

THE following brief remarks on the merits of a selection of thirty of the best among all the new Dahlias which came under my notice during my attendance at the exhibitions of the last season may be useful, and can be relied on, having been made from the flowers when in the best condition; although more than double the number were shown, it has been my object to notice only such as appeared deserving, and possessed just claims to improvement. I had drawn up a table showing the number of prizes which were obtained by each flower, but, upon reflection, thinking such a vague guide not entirely to be trusted to, some flowers being gainers of prizes at exhibitions whence I was unable to obtain exact returns, I have omitted it, and give you the results of my own judgment, which is an unbiassed one, trusting it may be acceptable as well as useful to your readers.

SELFS.

Brighton Beauty (Legge).—Pale blush, with a bold lacing of purple-crimson; petals full and form good, size extra; a first-rate show flower.

Cardinal (Skinner).—Bright scarlet-red; good form and outline; petals very regular, and well up in the centre.

Cherub (Holmes).—Very striking bright orange; petals well formed and regular, of good substance; outline tolerable; this will probably improve next season.

Cleopatra (Salter).—Deep yellow, or orange, striped with crimson, very showy, but outline scarcely up to the standard; flower rather under full size.

Delta (Turner).—Yellow; petals and outline good, and firm, but they do not fill well in the centre, which is the only drawback in this flower.

Duke of Devonshire (Dodd).—Rosy lilac, fading off to pure white at the lower portion of the petals, which are well formed, firm, of great depth; outline excellent, size large; one of the best flowers in my list.

Harbinger (Fellowes).—Deep scarlet; a showy flower, but of medium size, and petals rather thin.

Midnight (Fellowes).—A shaded flower, almost black; good depth of petals, united with much substance; fine outline; a promising flower.

Mrs. Critchett (Rawlings).—Pale orange-buff, with an amber tinge; of moderate size, and well cupped.

Mrs. Edwards (Summers).—Pale rosy lilac; petals good, but not sufficiently well up in the centre; good outline.

Perseverance (Slipper).—Orange-buff; a shaded flower of extra size, though rather coarse.

Royal Scarlet (Keynes).—Scarlet-carmine; great depth of petals, which are of good substance and form; an excellent show flower.

Symmetry (Barnes).—Deep crimson-purple; a tolerably good-shaped flower, but not over large; petals nicely cupped.

Touchstone (Fellowes).—A good purple flower; great depth of petals, but centre not sufficiently up.

FANCIES.

Carnation (Keynes).—White, with purple stripe, the white very clear; petals very nicely cupped and regular, well up in the centre, and of good substance; outline excellent; a first-rate fancy flower.

Charles Perry (Keynes).—Pale ruby, striped with deep purple-crimson; petals regular, rather shallow however, but well up in the centre, and good outline; a large flower.

Conqueror (Keynes).—Fancy; pink, spotted and striped with crimson-purple; good petal and moderate outline; a medium-sized flower.

Duchess of Beaufort (Bush).—Fancy; light blush, with a dark purple tip; petals well formed, of good substance, and outline regular, but rather small.

Fancy King (Legge).—Light amber-red, tipped with white; a neat flower, but a tendency to quill.

Fenella (Holmes).—French white, with purple tips, moderate size, and good petal; very promising.

Frances (Grant).—Scarlet, with a distinct clear white tip; size and form moderate.

Lady Paxton (Dodd).—Red, with nankeen tips; petals nicely cupped, well arranged and up; outline very good, and size extra; a very desirable flower.

Lady Popham (Sainsbury).—Light blush, with pale purple tips; petals of good substance, very well arranged, and up in the centre; outline and depth excellent, but somewhat under medium size, which is its only drawback.

Lady Scott Douglas (Dodd).—Light carmine-purple, with crimson-black stripes; petals rather shallow.

Marion (Fellowes).—French white, tipped with lavender-purple; petals large, and of good substance; outline extra, with good depth.

Mrs. Legge (Legge).—Dull yellow, with reddish purple tip; petals well formed, of good depth, and well up in the centre; outline and size moderate.

Roland (Bush).—A neat flower; white, with crimson-purple tips; good petal and outline; size moderate.

Saturn (Turner).—Clear yellow, with bronzy red tips; petals of good form and substance; medium size.

Tam o'Shanter (Dodd).—Pale lavender-purple, with ruby-crimson or purplish stripes; petals good, except in the centre, where there is some want of arrangement.

Tattycoram (Slipper).—Almost black, with tips like Empereur de Maroc; petals well formed, and up in the centre; outline good.

OUR HARDY HEATHS.

BY MR. PETER MACKENZIE, WEST PLEAN, STIRLING.

I have often thought that the numerous varieties of our hardy Heaths should be more generally cultivated than they are; those who desire to have plants long in flower should grow them, for the flowering may be kept up the greater part of the year. The most of them are plants of neat habit, and most varieties may be grown in a small space of ground. I should consider many of them well adapted for ribbon gardening; the low-growing kinds make excellent edgings for flower-beds and borders, and will grow in a variety of soils. Although, as Knight remarks, "An opinion generally, though I think somewhat erroneously, prevails that many plants, particularly the different species and varieties of Heath, require a very poor soil in pots; but these might, I conceive, with propriety be said to require a peculiar soil, for I have never seen the common species of this genus spring with so much luxuriance as from a deep bed of vegetable mould, which had been recently very thickly covered with the ashes of a preceding crop of Heaths and other plants that had been burned upon it.

The varieties of our hardy Heaths are not overlooked by the poet:—

"On Caledonian hills sublime,
Spreads its dark mantle, where the bees delight
To seek their purest honey; flourishes
Sometimes with bell-like amethysts, and then
Paler and shaded like a maiden's cheek
With gradual blushes; others, while as white
As rime that hangs upon the frozen spray.
Of this old Scotia's hardy mountaineers
Their rustic couches form, and those enjoy
Sleep which, beneath his velvet canopy,
Luxurious idleness implores in vain."

Another lady poet and botanist writes—

"Ne'er may again the heathery bed
Pillow the hardy warrior's head,
When resting from the strife—
The horrid strife that dyes the ground
With human gore; and from around
Impels the agonizing sound
Of fast-expiring life."

To those who burn acres of Heath every year, the cultivation of it in gardens and glass houses appears a strange thing. They think the individuals "daft," or they "dinna ken what to do wi' their siller," who engage in such pursuits; but even among our native Heaths there are several fine varieties that are well worth cultivating. In our common Heath, or Ling, *Calluna vulgaris*, we have the white-flowered variety, the double flowered, decumbent, tomentose, variegated, scarlet, and spiked.

The varieties of *Erica cinerea*, or "Carlin Heather," are the white flowered, dark purple, red, and flesh coloured. In the *Erica tetralix*, or Cross-leaved Heath, we have the *alba* and *carnea*. Many more names of hardy Heaths might be added, and those of your readers who desire more will find them in the volume of the *Floricultural Cabinet* for 1843. Some years ago an article of mine appeared in the *Cabinet*, "On Blanching Flowers in the Flower Garden." An extract from it may not be out of place at present. "The *Erica herbacea* is a common species in most flower-gardens, and also an early flowerer. Its blossoms are red in general, yet they may be made white without injuring the leaves of the plant or the flowers. A portion of the plant may be covered with light earth, before the flowers have any red colour, and the covered part may remain until the flowers of the uncovered portion are fully out. When the earth is taken off, it will be found that the corollas have increased in size, equal to those that were exposed, but instead of being red like them, they will be found to be a pure white. A sprinkling from a watering-pot with a rose on it will remove any of the soil that may remain about the flowers and foliage. Different parts of the plant may be covered, according to the fancy of the operator. Half of the flowers may be red, and the other half white, or there may be a circle of white flowers surrounding the red on the same plant. They will continue white for some time, and it may be amusing to some persons to observe the gradual progress of the colour growing upon the flowers. A sudden change may be made in the appearance of the flower-garden by this simple plan."

A writer on the cultivation of hardy Heaths says, "that the best mode of exhibiting their beauty to advantage is perhaps that of grouping them." The smaller-growing kinds are well adapted for edgings to peat beds; they are by no means particular in regard to choice of soil, growing well in light sandy loam mixed with a very little peat, and in all grades of soil of that class. The situation for them may be either wet or dry. The only care required to keep them in health and vigour is not to allow them to get more than four years of age without replacing them with young plants, with the exception of three species, which will be noticed hereafter. When they get beyond that age they are liable to have their stems split from the bottom to the top during winter, which, if it does not entirely kill the plants, very much disfigures them.

The keeping up a succession of young plants is readily effected; for all the sorts requiring to be renewed root readily by layers, which, when taken off and transplanted, either in September or April, rarely fail. Larger plants may also be transplanted with safety at these two seasons. The old European Heath, *E. Mediterranea*, which makes long shoots every season, is liable to have part of its tender branches killed back in winter, except in very sheltered situations, while the variety found in Ireland makes short firm shoots, and is never injured by the weather.

The manuring of Heaths is a thing not very common among gardeners, and yet it may be done with advantage to the plants. Mr. Knight says, "Experience having satisfied me that plants of all kinds, even Heaths, very often perish through shortness of food, and that they very rarely suffer from excess of it when their roots are confined to the narrow limits of a pot." Again he says, "A plant of a Heath (*Erica australis*, I believe) was placed under my care, with a request that I should treat it in any way I wished. It was then about eight inches high, and growing in a small quantity of peat-earth and sand, and in that it continued to grow, with very little increase of size, till the following spring. From that period it was regularly supplied with water, which, though clear, was considerably tinged with an infusion of pigeon's dung. I was apprehensive this kind of food would prove fatal to it; but, far from this being the result, the plant grew with excessive health and vigour, emitting very numerous branches, eight of which exceeded eighteen inches each in length. It was then taken away by the owner, and I have not since seen or heard of it, but it left me in a state of luxuriant health. How far other species of this genus will bear being thus abundantly fed with liquid manure is an interesting question to the gardener."

A knowledge of our native Heaths may lead some to a better acquaintance of the *Ericacea*, or Heath family, which are scattered over different portions of our globe, for there are many beautiful plants in the order; and a writer justly remarks, "Among all the productions of the vegetable kingdom, there is not a single individual but which has its uses; even those very tribes which daily remind us of man's fall, and the curse pronounced upon the earth for his sake, have in them properties of peculiar usefulness, and prove beneficial to the wants of man. God hath made nothing in vain: some are for use, others for ornament; and not a few, perhaps all, are possessed of medicinal properties—properties without which life itself would be a burden, and if deprived of which, it would be utterly impossible for man to exist. Those who despise God, and make flesh their aim, are compared to the Heath in the desert, and shall not see when good cometh; and it is poor comfort, when times mend, they shall have no share in it, but shall inhabit the parched places in the wilderness. It will be better to be

"'The man
Whom nature's works can charm, with God Himself
Hold converse, grow familiar day by day
With his conceptions, act upon his plan,
And form to his the relish of their souls.'"

NOTES ON NEW AND SELECT PLANTS.

LILIUM CANADENSE, *var.* FLAVUM. Nat. Ord. *Liliaceæ.*—An old but little-known variety, which was originally introduced from Canada into France, from whence plants were received in this country as far back as 1629. It grows wild in Carolina, Virginia, the Alleghany Mountains, and other districts of North America. A graceful plant, bearing flowers about one-third the size of the common white Lily, bright golden yellow, with numerous dark red spots; the number of blossoms varies from one to a dozen, according to the strength of the plant. Not so well known as its merits deserve. (*Flore des Serres*, 1174.)

18. COSMELIA RUBRA. Nat. Ord. *Epacrideæ.* Syn. *Epacris*

rubra.—A small evergreen shrub, the numerous branches of which are terminated by a single pendent flower, which are tubular, about an inch long, somewhat resembling that of an Epacris, of a bright carmine-red, which contrasts admirably with the dark green of the foliage. The leaves are imbricated, surrounding and overlapping each other along the stems. It was discovered about the commencement of the present century by the illustrious Robert Brown, inhabiting the marshes of the south-west coast of Australia, near to King George's Sound. It bloomed with Messrs. Loddige, in a cool house, for the first time in this country. (*Flore des Serres*, 1175.)

19. CLEMATIS LANUGINOSA, *var.* PALLIDA. Nat. Ord. *Ranunculaceæ.*—M. Van Houtte has reproduced a figure of this magnificent Clematis, which is decidedly the finest of the whole genus, and which he states has borne the severe winters of Paris without any protection. It succeeds well in the open air in this country also. The flowers are of remarkable size, measuring in numerous instances ten inches across; they are of a delicate lavender-blue, and constitute it one of the handsomest hardy climbing plants we have. An account of its history and introduction has already been given. (*Flore des Serres*, 1176.)

20. STREPTOCARPUS POLYANTHUS. Nat. Ord. *Cyrtandraceæ.*—From Port Natal, and raised from seeds in Kew Gardens. The flowers resemble those of a small Achimenes, being about an inch and a quarter across, pale slaty blue, with a blush tube and yellow throat, borne in clusters of five or six together. The foliage is large, and of a fine green. It flourishes in a moist stove, but requires a dry atmosphere during winter. (*Flore des Serres*, 1168.)

21. TRADESCANTIA DISCOLOR, *var.* VITTATA. Nat. Ord. *Commelineæ.* Syn. *T. lineata.*—Plants with handsome foliage are at present in great favour with the gardening public, and deservedly so. *Tradescantia discolor*, var. *vittata*, is a very remarkable member of this class, and inferior to few in the beautiful markings of its leaves, which are striped alternately along the whole length of their upper surface with bands of golden yellow and clear green; the under surface is a rich crimson-purple, the mixture of which produces a charming effect. The leaves in size and shape resemble those of the common garden Iris. The present variety made its first appearance in Holland, and we are given to understand M. Van Houtte secured the possession of the whole stock from M. W. Steen, who had it through a friend at Batavia. The blossoms are small and white, supported in crimson bracts. The plant is very easy of propagation, but requires a warm stove. (*Flore des Serres*, 1169.)

22. CYCLOBOTHRA ALBA. Nat. Ord. *Liliaceæ.*—A neat bulb, one among many which are less generally grown than their beauty would warrant. The flowers are pendent, pure white, and of a globular form, produced by the curving in of the petals. The inner surface of the latter is covered with delicate white down. The sepals are green, lightly ribbed with brown, and the whole flower about two

inches across. This species is from California, where it was detected by the late unfortunate botanical traveller, Mr. David Douglas. A cold pit suits this bulb better than any other situation. (*Flore des Serres*, 1171.)

23. HIBISCUS MARMORATUS. Nat. Ord. *Malvaceæ*. Syn. *Abutilon marmoratum*.—The flowers of this Hibiscus resemble in a considerable degree certain varieties of *Azalea Indica;* they are covered with an abundance of rose-coloured spots on a white or pale blush ground, and being thought to present a somewhat marbled appearance, gave rise to the specific name *marmoratus*. It was imported from Mexico in 1854, by M. Auguste Tonel, and bloomed for the first time in Europe with M. Amb. Verschaffelt, of Ghent, in May, 1855. It is a rather small bushy plant, bearing large leaves; the flowers are solitary, borne from the axils of the leaves, and are about three inches across. (*Flore des Serres*, 1159.)

24. STENANTHERA PINIFOLIA. Nat. Ord. *Epacrideæ*.—Introduced from New Holland in 1811. A small bushy shrub, bearing flowers at the extremities of the branches, and densely covered with small, narrow, and pointed foliage, about an inch in length, resembling in this respect some of the Pinus tribe. The flowers are borne in terminal clusters of three or four in each, tubular, rather under an inch in length, of a rosy crimson, with a white band and green tip. It flourishes well in a cool greenhouse. (*Flore des Serres*, 1162.)

25. IOCHROMA WARSCEWICZII.—Sent to the Botanic Garden at Zurich, by M. Von Warscewicz, from Peru. It is a pretty plant in every sense of the word, and is well deserving a place in the greenhouse. It is a free bloomer, putting forth its long pendent flowers when the plants are not more than six inches high, in pairs, from the axils of the leaves; they are tubular, somewhat resembling in appearance those of a miniature Datura, three inches in length, and an inch and a half across the mouth, of a lavender-purple, reticulated with veins of a deeper tint in the mouth and throat. The stamens are white and prominent. The foot-stalks are equal in length to the flowers. Foliage is a fine lively green, cordate, six inches in length, and four across. It is readily propagated by cuttings. (*Flore des Serres*, 1163.)

26. DIANTHUS PULCHERRIMUS. Nat. Ord. *Silenaceæ*. Syn. *D. Japonicus*.—Although this pretty little plant has been introduced to this country for some years, it is seldom seen in cultivation. It is supposed to be a native of China. The flowers are borne in a terminal cluster of thirty or forty, and resemble a "Sweet William" in miniature. Their diameter does not exceed the third of an inch; the petals are deep blood-red, while the centre is green, surrounded with a distinct, irregular, white eye. It is of dwarf habit, not growing more than from three to four inches high, and has a very neat appearance. The leaves resemble those of the Daisy, which gives rise to the name by which it is known by French gardeners, as "l'Œillet à feuilles de Pâquerette." It succeeds well in peaty soil,

and has a charming effect when grown in small pots. (*Flore des Serres*, 1172.)

27. **Passiflora tinifolia.** Nat. Ord. *Passifloreæ.*—A rare and little-known species, belonging to the edible section of Passifloras. It is said to be an ornamental plant, bearing fruit the size of an apricot, globose, yellow, and probably as well flavoured as the other species of this group. The flowers are somewhat showy when expanded, about two inches and a half across; the sepals are rather narrow, greenish, white without, and deep pink within; the corona consists of a double ray, the filaments of which are white, with three banded rows of purple, and three of crimson towards the base. The leaves are about four inches long, alternate. It is a climber of easy culture in a moist stove; a native of Demerara. (*Bot. Mag.*, 4958.)

28. **Astibile rubra.** Nat. Ord. *Saxifrageæ.*—A neat-blooming, hardy, herbaceous plant, discovered on the Khasia mountains, in Eastern Bengal, by Dr. Griffith, and afterwards by Drs. Hooker and Thomson, by whom seeds were sent to the Royal Gardens at Kew. It is perfectly hardy, and blooms in the late summer and autumn months. It grows to the height of about five feet, and is similar in habit and appearance to the Spiræas. The flowers are produced in a panicled spike of near a foot in length; the individual flowers are small but numerous, of a bright pink. (*Bot. Mag.*, 4959.)

29. **Lobelia splendens,** *var.* **ignea.** Nat. Ord. *Lobeliaceæ.*—An old but showy variety, introduced to England upwards of forty years ago, from Paris. It was discovered in Mexico by those illustrious travellers Messrs. Humboldt and Bonpland, who sent seeds of it to the Berlin Botanic Garden. It appears to have been almost lost to our gardens for many years, and although treated as a greenhouse plant, it will be found to be perfectly hardy. It belongs to the erect-growing herbaceous class, and attains two to three feet high, producing its flowers very freely, which are large, and of a rich scarlet. (*Bot. Mag.*, 4960.)

30. **Seaforthia elegans.** Nat. Ord. *Palmæ.*—A Palm inhabiting the northern and eastern coast of Australia. Plants have been raised at the Royal Gardens of Kew, from seeds transmitted by Allan Cunningham, and one of these having attained a height of twenty-eight feet from the ground, produced its racemes of small flowers of a dull pale lilac, from the side of the dark green graceful trunk, in the autumn of 1856. (*Bot. Mag.*, 4961.)

31. **Adhatoda cydoniæfolia.** Nat. Ord. *Acanthaceæ.*—A new stove shrub from Brazil, introduced by Messrs. Veitch and Son. The flowers are large and showy, about the size and somewhat of the form of *Salvia patens;* they are produced closely, surrounding the stem from the axils of the leaves. The upper lip is white, tipped with purple; the lower, large and pendent, of a deep violet-purple, with a white streak down the centre, under side cream colour. The foliage is handsome, and, as the name would indicate, somewhat like that of the Quince. (*Bot. Mag.*, 4962.)

32. **Farfugium grande.** Under this name is placed, provisionally at least, the new plant shown by Mr. Glendinning at a late meeting of the Horticultural Society, and supposed to be a species of *Tussilago*. Having bloomed at the end of December, its flowers appear to indicate it as the type of a new genus proposed under the above name by Dr. Lindley. The appearance of the foliage is much like that of a Coltsfoot (*Tussilago*), but this is the chief attraction of the plant, the flowers being rather insignificant, yellow, with a dull purple centre. The leaves are large, measuring sometimes more than two feet in circumference, and borne on stalks twelve to eighteen inches long; their colour is a peculiarly bright emerald-green, blotched with patches of clear yellow. It is supposed to be evergreen and perfectly hardy, and we believe will prove a vast acquisition to British gardens, the showy foliage entitling it to a place in every parterre, where it will need only be seen to be duly appreciated.

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NEW AND SELECT GARDEN HYBRIDS.

[Under this head we purpose to describe all such seedling flowers or hybrid varieties which we consider worthy of cultivation that come under our notice, and which will serve not only as a guide to the amateur in the selection of his plants, but as a record of the triumphs of horticultural skill in the department of hybridization.]

PANSY IMPERATRICE EUGENIE (Miellez).—A new French variety of the fancy class. The upper petals are mottled with rosy plum colour, surrounded by a narrow creamy white border; the lower petals are cream colour, with a large blotch of violet shaded off to rose. The flowers are of large size and tolerable shape. (*Flore des Serres*, 1161.)

2. **Pansy Leonidas** (Charpentier).—Another continental variety of the fancy class, sent out by M. Miellez, of Esquermes, near Lille. The upper petals are of a rich violet-plum colour, the lower sulphur-white, with a broad edge and large blotch of deep violet; yellow eye. An immense-sized flower, but not of first-rate form. (*Flore des Serres*, 1161.)

3. **Fuchsia rosalba** (Coene).—A hybrid raised by M. Coene, of Ghent. It is a distinct variety, the tube and corolla being of a delicate peach colour, and the sepals tipped with pale carmine. Notwithstanding our English taste, which leads us to prefer a dark corolla, with a light tube and sepals, this will be found to be an attractive and free-flowering plant. (*Flore des Serres*, 1156.)

4. **Tropæolum azureum**, *var.* **grandiflorum.**—A variety in the possession of M. Verschaffelt, having flowers of superior size to those of the old *T. azureum*, of a lighter blue, and with a large white centre. (*Flore des Serres*, 1160.)

5. **Azalea indica**, *var.* **Beauté d'Europe.** Nat. Ord. *Ericeæ.*—A very showy hybrid, lately sent out by M. Miellez, of Esquermes.

The flowers are of good size and tolerable form, the ground-colour white, ornamented with numerous regular salmon-red stripes. It is a decided acquisition to this beautiful tribe. (*Flore des Serres*, 1157.)

6. AZALEA INDICA, *var.* ALBO-CINCTA (Coene).—A hybrid, raised by M. Coene, nurseryman, of Ghent. The flowers are large, bright pink, surrounded by a waved edge of pure satin-white. M. Van Houtte has purchased the stock, which he will shortly send out. (*Flore des Serres*, 1180.)

7. TYDÆA ORTGIESII (Van Houtte).—A plant closely allied to the Achimenes. It was raised in the establishment of M. Van Houtte, who named it after his friend M. Ordgies, of the Botanic Garden of Zurich. A robust and tall-growing variety, flowering freely. The blossoms resemble in form those of *Achimenes picta*, but are, however, of superior size; they are of a rich crimson, numerously spotted with purple; the throat is pale yellow, and the stems red, closely covered with hairs. It requires the same treatment as the Achimenes. (*Flore des Serres*, 1181.)

8. PELARGONIUM TATTYCORAM (Slipper), FANCY.—A handsome variety, the upper petals deep maroon, with a narrow white edge, the lower white ground, with crimson-purple blotches; a nice round flower.

9. PELARGONIUM EMILY WHITCHER (Slipper), FANCY.—A delicate flower of good form; upper petals clear carmine-rose, narrowly edged with white, lower petals white, with a banded blotch of the same tint as the upper; the colours are very clear and very pleasing; a fine large flower.

10. PELARGONIUM GERTRUDE RICHARDSON (Slipper), FANCY.—Upper petals crimson-maroon, with an even edge of white, lower petals having a large blotch of the same intense colour, which covers nearly two-thirds of their surface; centre clear white; good form, and a showy flower. The above three are new varieties sent out by Mr. Slipper.

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FLORICULTURAL OPERATIONS FOR FEBRUARY.

IN THE FLOWER GARDEN.

GENERAL OPERATIONS.—Most of the operations directed last month may still be carried out; all alterations should be done as soon as possible. *Beds and Flower-borders*, dig and dress, being careful not to disturb roots, and add some well-decomposed manure, leaf-mould, etc. *Grafting*, should be commenced when the weather is open. *Lawns, Verges, etc.*, roll after rain as the season is fast advancing for mowing; trim verges, and lay down turf where necessary. *Layers of Shrubs, etc.*, transplant such as are rooted. *Plans of Flower Gardens* should now be made, and mark each bed with the kind of flowers desired, after which see to preparing a stock of plants for them. *Polyanthuses*, earth up with rich compost. *Protect* all half-hardy plants out of doors. *Seeds*, clean and sort for use next month; sow seeds of shrubs and forest trees, also of

THYMUS AZUREUS.—This neat little plant is one of the many species which are adapted for rockwork, and it will grow well in common peat. There is nothing striking in it, and the same may be said of most rock plants, they are well adapted for the purposes for which they are cultivated; for a tall plant on rockwork would destroy the features of the place, though there are many that would succeed. *Thymus azureus* has a purple or violet coloured flower, a short bushy habit, continues a considerable period in bloom, and greatly assists in making up a variety in all places where dwarf plants are required. The great use of these dwarf plants is that they flourish where there is but little sustenance, among stones and bad ground, where the soil is shallow and poor, and they propagate easily from seed or by parting the roots.—*J. W. T.*

PENTSTEMON COBÆA.—Having been very successful in cultivating this beautiful plant, which I consider one of the finest of the genus, I forward you my mode of treatment, which, if you think it worthy of a corner in your valuable pages, is at your service. I strike the cuttings in small sixty-sized pots, in light sandy soil, putting them into a dung hotbed frame until they are rooted, when I remove them to the stove, and place them under a hand-glass, until they are well taken with the pot, always being careful, however, to exclude air and sunshine. I afterwards gradually inure them to the ordinary atmosphere of the stove, in which they remain until such time as I consider them strong, and able to bear a colder atmosphere, to which they are gradually inured, and finally removed to the open air. It is of the greatest importance, in the early stage of their culture, to keep them from a current of cold air. The plants I wish for stock I plant in the open ground, in deep rich loam, where they stand till September, or the beginning of October. They are then lifted and put in a cool greenhouse for the winter. As, however, this is a plant very subject to mildew, and prevention being better than cure, I generally dust them well over with sulphur when housing them, even although there be no appearance of mildew present.—*J. D.*

THE VINEGAR PLANT.—A very interesting series of observations respecting the Vinegar Plant were recently laid before the Botanical Society of Edinburgh, by Dr. Balfour. Of these, which we have not hitherto been enabled to notice, we now present a summary:—Much interest has been recently excited by the statements relative to the Vinegar Plant. This plant, which has a tough gelatinous consistence, when put into a mixture of treacle, sugar, and water, gives rise to a sort of fermentation by which vinegar is produced. After six or eight weeks the original plant can be divided into two layers, each of which acts as an independent plant, and when placed in syrup continues to produce vinegar, and to divide at certain periods of growth. The vinegar thus produced is always more or less of a syrupy nature. Various conjectures have been hazarded as to the origin of the so-called Vinegar Plant, some stating that it came from South America, or other distant regions, and others that it is a spontaneous production. Dr. Lindley states that it is a peculiar form of *Penicillium glaucum*, or common blue mould. There seems to be no doubt that it is an anomalous state of mould, or of some fungus allied to it, and the peculiarity of form and consistence appears to be owing to the material in which it grows. In place of producing the usual cellular sporiferous stalks, the mycelium increases to an extraordinary extent, its cellular threads interlacing together in a remarkable manner, and producing one expanded cellular mass.

FRANCISCEAS.—Francisceas require to be grown in the stove. When at rest, however, which, in the different species, occurs at varying periods, the temperature of an intermediate house is high enough for them; and from this state of rest they are excited by a gentle increase of temperature, aided by the use of mild bottom heat. They are increased by cuttings of the young shoots planted in sand under bell-glasses, and plunged in a gentle heat. When they produce seeds, this affords another means of increase; *F. latifolia* not unfrequently bears seeds. They should be potted in a compost of fibrous peat, good mellow loam, and leaf-mould, in equal parts, enough sand being added to secure good drainage. They must have but little water while in a dormant state; but when growth has become active they will be benefited by a liberal supply, if care is taken that it does not stagnate. The large-leaved species seem to require greater supplies of water. Several of the species rank amongst the most useful of winter-blooming plants.—*D. K.*

The Floricultural Cabinet.

MARCH, 1857.

ILLUSTRATION.

CLEMATIS LANUGINOSA, VAR. PALLIDA.

AS one of the handsomest hardy climbers we possess, and is remarkable more especially for the immense size of its flowers, some of which have measured ten inches in diameter. It resembles closely in habit *C. patens* and *florida*, and is therefore excellently adapted for trellis-work, verandahs, and other erections of like character. Having stood the late severe winters at Paris with no other protection than a slight covering of leaves, we may be assured that there are few places in our country where it would not do well. It is easily multiplied by layers or cuttings, and will no doubt prove a great acquisition to all who are fond of showy climbers.

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ON THE CULTURE OF TRITONIA AUREA.

BY AN OLD SUBSCRIBER.

HANDSOME plants of easy cultivation recommend themselves to every one, and the present more especially, as it not only answers this requirement, but multiplies freely, and may be kept through the winter in any place which excludes frost. I have usually a dozen pots of this delightful bulb in splendid show every season, literally loaded with their splendid deep orange-coloured flowers, and upwards of three feet high. The compost I have found them to grow in best, consists of equal parts of well-rotted leaf-mould, sandy loam and turfy peat, unsifted, and mixed up with silver sand; this allows the roots to penetrate freely amongst it, being of a light porous character. I procure large-sized pots, in which, about the middle of February, I plant six strong bulbs, putting them in rather deep, so that they may be covered with about two inches and a half of the above-mentioned compost. If, in turning the bulbs out of the old pot, any are found to be pushing, I take care that the tender shoots are not broken, a mishap to which they are very liable, being exceedingly brittle; if this operation, however, is performed at the time indicated, the bulbs will not have made any considerable advance, and this caution will not be so necessary as when delayed to a later period. Another advantage possessed by early potting is that the plants bloom stronger. To increase stock, I separate the young bulbs formed at the side of the old ones, which I take off at the time of potting, and plant them in store pots, using a compost rather more sandy than that for old bulbs; the second or third year afterwards they make good strong-blooming plants. To return, when potted the old bulbs may have a gentle watering, enough to slightly moisten the fresh soil, after which I withhold this element until the shoots begin to sprout above the pot. Having one of those useful erections a cold-pit, I place the pots therein, where they are kept cool, and make slow and steady growth; if urged into flower by any increased temperature, the plants are weakly, and never flower so well as when thus treated. Water is given frequently, and the syringe often used as they advance in growth, the latter chiefly as a preventive to the red spider, which appears very fond of the Tritonia, and without this precaution would soon turn all the leaves yellow, by abstracting their natural juices. As the season advances I set the plants out of doors until the blossom appears, choosing a rather sheltered place for them; when coming into flower I remove them into my small conservatory, which they continue to ornament throughout the months of August and September. Under this treatment my plants are very healthy and robust, covered with fine large panicles of flowers, and bright green leaves. *Tritonia aurea* is a native of Caffraria, from whence it was introduced by Mr. Backhouse, of York, in 1848, and for which he highly merits the thanks of the gardening public.

REMARKS ON WATER AS A MEANS FOR ORNAMENT IN PLEASURE GROUNDS AND PARKS.

BY MR. GEORGE THOMPSON, ALTHORPE.

WATER contributes in an eminent degree to the improvement of landscape scenery, and on the proper appropriation of the site, extent, and form of a piece of water the success of the landscape gardener frequently depends. The neglect which this branch of the art has suffered may be attributed as much to the incompetency of the designer as to the difficulty of obtaining the required element, and it is better to submit to the deprivation than to have continually in view a misapplication of that which, otherwise judiciously disposed, would have essentially contributed to the charm of the landscape or grounds. Were proofs required of the value of water in ornamental grounds or park scenery, it would only be necessary to refer to those lovely scenes of nature, where the smooth unrippled lake reflects all the harmonious tints of the surrounding scenery; where the winding river, with its variously formed banks, enlivens the meadow and valley; where the babbling stream or rivulet trickling down its clear and pebbly bed, breaking the silence, adds solemnity to the woods; or where the impetuous and bolder cataract dashes its mighty volume into the foam and spray of the waters beneath, or perchance breaks itself into numerous eddies and streamlets amongst the well-worn rocks in its course. Scenes like these must be viewed with admiration by all possessed of taste, and are therefore desirable wherever they may be appropriately introduced on the domain of the lover of the picturesque or beautiful.

Lakes are very ornamental and proper in some situations, but require extent in length and width; a unity of character is necessary in the surrounding scenery, and its boundaries should be much diversified in form, though this particular will be considerably modified by the extent devoted to it; and no distinguishable character of outline should be observable, the little irregularities occasioned by projections and inlets are productive of a pleasing effect. A river winding along a valley or on an extended plain adds a lively interest to the scenery; where an adequate supply of water affords the opportunity for producing an artificial river, much care is requisite in directing its course, in order to avoid those regular and formal curves which so frequently mark works of art with a character offensive to the observer of nature. The regularly formed canal, with its equal width and sloping uniform banks, betrays the work of art in a very slight degree more than the regularly formed winding stream, with its sweeps and curves in geometrical exactitude, and its banks of uniform declivity. These formalities should always be avoided, for their monotony is ever painful to the eye of taste and correct judgment. A rivulet winding through well-wooded scenery is as well calculated to please the ear as the eye. The modest and musical tones of "babbling brooks" and purling streams, enlivened by the surrounding wood, amongst which they track their meandering way, are pleasing to the mind of the lover of nature in her rural dress. It is in such sequestered spots that such an one delights in being alone, removed from the turmoil and bustle of the world, and enabled uninterruptedly to enjoy and contemplate nature's works. To such retreats man is instinctively led; and who is there who has not felt it

"Refreshing both
To sense and soul, world wearied,"

when able to avail himself of such a sylvan ramble? Water presented to the eye in the form of a cataract impresses the mind with the idea of grandeur, and in no other form perhaps is its appearance so picturesque, especially if on a large scale, and where it is made to dash with bold irregularity over a rugged precipice, and where the adjacent ground supports a character in unison.

"While from aloft the bursting torrents flow,
As deep recoiling surges foam below;
Prone o'er the rocks the whitening sheet descends,
And viewless Echo's 'stonished ear it rends."

In the disposal or formation of ornamental water, the banks must be a particular feature in producing the character required; on these much depend as to the general effect of the subject, and much judgment is essential to their well and appropriate disposal. To some situations the gentle curved line would be best adapted; to others a comparatively straight line on one side, with perhaps a decided irregularity on the other; and sometimes the precipitous and towering bank, in places overhanging, would give good contrast and effect. The curved undulating line may be introduced where a continuity of a flat piece of water is visible, or where an irregularity of outline in the distant scenery is manifest, and where any high and much-projecting forms in the foreground cut the irregularity of the distance, then the opposition of the curved line will be more particularly requisite, and truly in harmony. A partial flat in parts is frequently desirable, to give a view to the more interesting portions of a piece of water to be seen from the house, or any other conspicuous point of view, as well as sometimes being in contrast to the precipices of another portion of the bank; and sometimes, where a river is much covered, a flat surface might in parts afford a view of some distant curve. A portion of the river thus reappearing at a distance would be truly interesting; and this effect might even be produced under some circumstances with a lake, as well as a river. The perpendicular and towering bank helps much to vary the appearance and character of the sides of a lake or river, opposing the regularly sloping bank, or even a dead level; to produce the picturesque these oppositions should be carefully studied. The great object in works of this kind is so to dispose them that they shall not appear the studied production of art. Here may well be taken into account the component parts of banks, as well as their forms considered as a whole, for on these parts depend much the character and effect produced. No better guide can be followed than the composition of natural banks, and the varieties of strata remarked; as we frequently observe that those of a soft nature are washed away by the stream, leaving projections of stronger substances. Parts being undermined, portions of green turf are thrown down, perhaps resting midway, from which sometimes are observable brambles or other bushes, just able to obtain support, and throwing their branches towards the stream below, all which combine to produce the most lively interest; and in works of art, where picturesque beauty is an object, by observing and imitating these striking features, as well as other prominent peculiarities, the work may be made to assume a character of natural irregularity and beauty, which is too seldom observed in artificial productions.

ON THE MANAGEMENT OF ORCHIDS.

BY MR. WILLIAM BIERLEY, GARDENER, SANDEN HALL.

THE Orchidaceous tribe of plants is a peculiarly interesting one, whether we consider the singular forms under which they put forth their strange blossoms, the great variety of colour manifested not only in the tribe, but even in a single flower, their peculiar habit and modes of growth, or their quaint and exotic appearance; all combine to add interest to them, and give rise to expressions of wonder and delight when a good collection is viewed in full perfection of growth and flower. The cultivation of Orchids has become much more general within the last dozen years than it was before, and many persons now attempt to form a small collection who heretofore would have considered them as beyond their reach or means. I have here a good selection which has been under my care for some years, and, with a view to assist beginners in Orchid-growing, beg to give a few general remarks.

Of Orchids, some are terrestrial, growing like English Orchises, but the greater number of them, and by far the most interesting, are those growing upon trees. Some of this class delight in a very elevated situation, upon the summit of the higher trees; others upon low bushes, or decayed parts of old trees. They are not found growing generally through the forests, but are choice in their place of growth. The trees overhanging a river are in many instances found to be a habitation for them, but even under such an advantage, it is observable that a considerable number of miles may be passed in their native habitats and not a single plant be discovered, when a sudden turning in the course of the river presents itself, and most probably rendering the atmosphere at such a situation somewhat different from the general course of the river, a considerable number of trees have been found to be literally loaded with the plants. Although fond of a damp atmosphere, this tribe delights in a free circulation of air. Collectors in general state that whether they are discovered upon old trees in a forest, or by a river, they are nearly always found on the outskirts, where they can have occasional exposure to the sun and a free admission of air. However numerous may be the plants growing upon a single tree, not more than five species were ever discovered on the same tree.

Collectors have informed us that, like all other plants, Orchids require a resting season. In their native places, this is during the period there termed the "dry season," when the heat is lower; and the growing and blooming time in the "wet season" of the year, the heat being much higher, reaching to 90° or more. These particulars should always be attended to by growers of Orchids in the stove; the greater the heat, the more powerful the moisture and the freer admission of air. To cause the plants to flourish well, these conditions must be obtained; and as they are best realized in spring and summer, the most suitable season of rest is from November to the end of February. During this period the plants should not stand upon a heated flue, but upon a trellis placed upon it. The heat of the house should be regulated so as to keep it 60° by night, and allow it to rise to 68° by day. The plants will not require much water at the roots while resting, but during the middle of each day the warm flue should be sprinkled with water, to cause a little humidity. When the resting season is over many kinds will generally require repotting. I have not confined my practice to that time only; but when during summer a plant seems to want such extension of room, I afford it immediately by repotting, or in some cases keep raising the soil, etc., by piling additional portions successively. In order to secure the plant steady, I fix a strong stick, at the first potting, nearly at the centre of the pot, and by fixing two cross pieces of wood to it, extending crosswise the inside of the pot near the rim, it becomes quite firm when the soil is filled in, and is a very useful support to the plant; indeed, in some instances it is quite indispensable.

The most suitable soil to grow the plants in is sandy peat, not a soddened kind, but having as much stringy roots in it as, when cut into portions an inch square, will cause each piece to adhere. In some instances I use decayed wood from trees mixed with the peat, and a portion of vegetable mould. In potting, I always give a good quantity of broken pots for drainage, so as to allow the water to pass off quickly. If this be not attended to, the water would become stagnant, the soil soddened, and the plants would most certainly be sickly. I always use water of a tepid temperature, to prevent check being given from cold, and do not sprinkle the plants over the tops more than three times during a year, then merely for the purpose of washing off dust; I prefer sponging them over.

When the growing season commences, the temperature of the house is raised from 65° to 72° by night, and from 72° to 95° by day. Instead of syringing over the tops of the plants, I sprinkle the flues twice a day, about ten o'clock in the morning, and two in the afternoon; this supports them during a powerful sun, by rendering the air humid. I do not allow the flue to be moist when the sun has set; for if the house be then closed in a very damp state, some of the delicate plants would probably be killed by it, and to very few it is beneficial.

The term *Orchid* is general, some being *terrestrial*, others *parasitical*, and again others are *epiphytes*.

Parasitical Orchids are such as are either destitute of the power of pumping up their nourishment from the soil, or of elaborating it completely, or that cannot exist without absorbing juices of other vegetables. These may be divided into, first, those which grow on the surface of others, as the *Cuscuta* and *Mistletoe;* and, secondly, intestinal parasites, which are developed in the interior of living plants, and pierce the epidermis to make their appearance outwardly, such as the *Uredo* and *Æcidium*. *Epiphytes*, or false parasites, are such as grow upon either dead or living vegetables, without deriving any nourishment from them. This class, which has often been confounded with the preceding, has two distinctly characterised divisions. The first, which approaches true parasites, comprehends cryptogamous plants, the germs of which, probably carried to their stations by the very act of vegetation, develope themselves at the period when the plant, or that part where they lie, begins to die, then feed upon the substance of the plant during its mortal throes, and fatten upon it after its disease; such are *Nemasporus*, and many *Sphærias;* these are spurious intestinal parasites. The second comprehends those vegetables, whether cryptogamic, such as *Lichens* and *Musci*, or phanerogamous, as *Epidendrums*, which live upon living plants, without deriving any nutriment from them, but absorbing moisture from the surrounding atmosphere; these are superficial false parasites; many of them will grow upon rocks, dead trees, or earth.

In an early number it is my intention to furnish a few practical instructions on the treatment of some genera which require particular management.

ON THE TREATMENT OF ANNUALS.

BY MR. G. W. MANLY, STOKE.

ONE of the prevailing faults in the sowing of annual flower-seeds is sowing too thickly; in consequence of this, how often do we find such poor displays of bloom, and such weakly, drawn-up plants. On the other hand, too rich a soil is unsuitable for the majority of this class, leading to the production of a great quantity of leaf, without a proper show of flowers, and thus, by these prevailing faults, we frequently lose fully one-half the beauty we should otherwise receive from a nice display of the bloom of this interesting class of plants. Very little richness in the soil is necessary for hardy or half-hardy annuals, excepting perhaps German Asters and intermediate Stocks. Some few indeed prefer a light and rather sandy soil, as the Calandrinias and others. When sown, the seed should be scattered thinly, or if not, the plants will require to be thinned out so soon as they arrive at a sufficient size to permit the operation to be done, according to their habit, whether upright or creeping. Very fine seeds may be scattered better by being mixed with small dry sand. Thinning out ought to be conducted on the principle of leaving sufficient room for each plant to develope itself fully by the time it is coming into bloom, by which plan we may always ensure fine flowers, and plenty of them. To have them bloom early in spring they must be sown in autumn, soon after the seeds have been sorted and dried, but in this case a few will require a slight protection from winter frosts; early in spring they may be transplanted. The Californian annuals are well adapted to this treatment, and bloom quite as well under it as those which are sown in spring to flower in summer. For a succession they may be sown through spring, and even up to midsummer, which will keep up a display until the frosts of winter put a period to their beauty. Half-hardy annuals should not be sown out of doors until we feel assured frost has left us, which is seldom earlier than the end of April. Some of this class are best brought forward by sowing in pots or boxes, plunged in a gentle hotbed, and transplanted in the open air about the beginning of May. Transplanting is beneficial also in checking a tendency to over-luxuriance, and thus causes a greater profusion of flowers. Annuals may be made to bloom for a lengthened period if the formation of seed be prevented, by cutting off the flowers as they decay. In this manner the common Mignonette may be rendered perennial. After the plants have made progress in the open ground, all that is necessary to be done with annuals is to keep them a little in order, and free from weeds, with due attention to watering them in dry weather.

For small beds or gardens, the dwarf kinds look best, and should be invariably placed nearest the sides of the beds, even in gardens of greater pretensions, with the taller sorts in the rear, or towards the centre, and attention is also needful to a proper disposition of the colours, in which much may be done, whether sown in patches or in masses of one bed of a sort. To some these remarks may appear trivial, yet I think they may be useful, at least to the young amateur, for unfortunately we do not often see these useful things treated as they ought to be.

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CLIANTHUS PUNICEUS, AS A STANDARD.

BY WILLIAM WAINWRIGHT, ESQ., DUTTON HOUSE.

AS a standard this plant makes a very beautiful object, and is well worthy of a place wherever it can be grown; its beautiful pendent racemes of coral-red flowers and fine foliage conduce to place it in a high position in the catalogue of ornamental greenhouse shrubs. I have thrown together a few remarks on the treatment pursued by myself in forming standards, which may be successfully followed by those having the means at command, assuring them that they will consider themselves amply repaid their trouble when the plants have become established blooming standards. I commence by taking off cuttings in the first week of June, and these should not exceed four inches in length, being also of the present year's growth; before inserting the cuttings I find it advantageous to allow them to remain or a day, to dry off some of their superabundant moisture, which not only causes them to take root sooner, but also ensures greater success. I strike them in sand, inserting the cuttings about two inches, and covering with a bell-glass. Introduced into a house or pit where they may have a temperature of about seventy degrees, they will speedily take hold of the soil, and when nicely rooted, I pot them off separately into small-sized pots, using a compost of good loam, leaf-mould, decomposed cow-dung, and sand, all well mixed and roughly sifted. When potted, I place them in bottom heat until they are well rooted, afterwards removing them to a cooler and more airy situation in a greenhouse or conservatory. As the plants progress I shift them occasionally, and give constant attention to watering. All side shoots will require to be pinched off as they appear, to obtain a clear straight stem of the desired height, and to ensure the latter, the plants must be sticked and regularly tied up. When they have attained the wished-for height, I pinch off the tops, in order to cause the production of a head, and continue to pinch the laterals in until I have obtained a nicely formed bushy head, yet not too crowded with branches, and richly decorated with its thick dense foliage. When thus treated and planted out in the conservatory, in good rich loam, cow-dung, and leaf-mould, they will make splendid objects. Before planting them, I have a pit dug in the border of the conservatory, three feet square by two and a half deep, for the reception of the compost, then inserting the plant a little deeper than it was when in the pot, and securing it to a stake. In such a situation *Clianthus puniceus* flourishes far better than in pots, and, if well supplied with water when in a growing state, will flower most abundantly, resembling at a little distance a Laburnum, with handsome bunches of rich red blossoms.

PRACTICAL HINTS ON THE STUDY OF BOTANY, AND THE FORMATION OF HERBARIA.

BY A NORTH-COUNTRY SUBSCRIBER.

THE student having made himself master of the outlines of the science of botany so far as to understand the principles of classification and the system of Linnæus, he should by all means apply himself to the natural system, to which the former may be considered as a useful preparatory course; not that there exists any close similarity or likeness in the two systems, but as a means of his becoming thereby acquainted with the organs of plants, and an easy method of discovering the names of such species as may fall under his notice. To become more intimately versed in a knowledge of plants, their structure, physiological peculiarities and points wherein they differ or approach each other, there is nothing like the natural system, to which I would earnestly advise the young botanist to apply himself. Let him particularly examine the structure of such plants as he may select, making careful drawings of each organ, and preparations from the plants themselves, to serve for reference and examination as he proceeds in his studies; for, as it has been justly observed, "there can be no doubt that the exact investigation of the structure, in all particulars, of the commonest plant tends more to a correct knowledge of botany than the superficial examination of all the plants in nature." But it must be remarked that it is only by the examination of a considerable number of plants that just views of the science are attainable, and for this purpose access to a garden is necessary; whilst the study of the plants indigenous to the soil, and natives of our own country, may be carried on in conjunction with that of exotics. The distinction of natural orders demands primary attention, then the differences of genera, and, lastly, of species. It has been supposed that there are perhaps one hundred thousand species of plants, which are distributed through about nine thousand genera, all contained in something like three hundred natural orders; from the consideration of which it will be seen that unless the smaller leading groups be examined first the mind will become bewildered, and fail to receive a proper impression of the relationship which genera and species bear to each other, or of points wherein they differ. For the purposes of investigation, and to have at all times ready access to plants, there is no plan possessing so many advantages as that of preserving specimens by drying them, and forming a *herbarium*, without which it is manifestly impossible to obtain any particular plant in some localities and at certain seasons. A good herbarium should consist of well-selected specimens, showing their manner of growth, and all the various parts and organs which are peculiar to each species. For the guidance of such as are about to form a herbarium, I would recommend them to proceed after the following method, and such a collection, judiciously formed, correctly named, and well kept, is an indispensable requirement to the botanist.

The specimens selected are to be placed between sheets of smooth, soft, brown paper, such as that made by Bentall, expressly for this purpose, or where any difficulty may exist in procuring this kind, common blotting-paper will answer almost as well. Each specimen must be spread out evenly, a sheet or two of paper laid over it, then another specimen and so on, until a small pile is made; the whole may thus be placed between two smooth boards and pressed by a weight, which should at first be rather light, and gradually increased. As fast as the sheets become damp they will require removal, dry ones being substituted in their place; for this purpose it is well to examine them daily whilst the drying is going on, or, if this be inconvenient, each alternate day will suffice. Various presses have been invented for facilitating the drying process, for common purposes however, two or more boards, planed smooth, a stout strap to buckle, and a wedge or two, answer very well; in this press a few clean sheets of paper are laid on the bottom board, followed by a specimen, more paper and other specimens, with a board occasionally introduced according to the size of the pile, to keep the whole flat and even; the specimens being thus laid out, the upper board is put on and the strap buckled round them, under which the wedges are driven, gently at first, and tighter at each succeeding change or shift of the papers, until the whole of the specimens are thoroughly dry. During this process most of them will have lost their colour, but retain the form of even delicate parts, and, when carefully dried, in great perfection. Such as are thin dry rapidly, whilst fleshy plants must remain considerably longer under pressure, although the process is facilitated and the time materially shortened by steeping them for about an hour in a strong solution of bichloride of mercury (corrosive sublimate), before placing them in the press; this solution is further useful in causing leaves of certain plants to adhere, where they would otherwise to a great extent fall off, and in preventing the attack of minute insects. A ticket or label should accompany each specimen as placed in the press, giving the name, date, and locality, together with any other useful particulars; as for example, of indigenous specimens, the nature of the soil, and whether abundant or rare in the spot whence they were taken. When thoroughly dried, it is advisable to wash each one separately with a half-saturated solution of corrosive sublimate in spirits of wine, laying it on with a large camel-hair pencil; such plants as were previously dipped in this solution before drying will need no farther application of the solution. The object of applying the corrosive sublimate is to preserve the specimens from the attacks of insects, which it does very effectually. To secure the specimens, the student will require a number of half sheets or leaves of white paper, rather stout and large, on which to gum them down. These should be of sufficient size to hold the largest specimens, and throughout the whole collection such size should be adhered to, so as to secure uniformity of appearance; for most persons foolscap paper may suffice. Some sheets of a thinner description of paper will also be necessary, over one side of which a coating of adhesive mixture should be laid, this is best composed of equal portions of gum arabic, sugar, and powdered tragacanth, made into a rather stiff solution; after being brushed over one side of the thin paper as before remarked, it is cut up into strips when dry, and used for fastening the specimens down to the papers which hold them; the breadth of these strips may vary from the eighth of an inch to a quarter.

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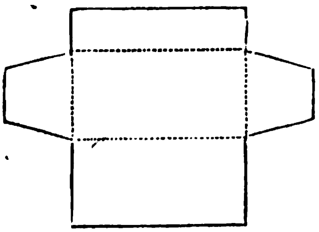
Having carefully laid out a specimen on the sheet designed to receive it, small bands or strips of the gummed paper are moistened by the tongue, and fixed across the main stem and branches, which will secure the whole firmly down to the paper. It is advisable to place no more than one species on each sheet, although there may be as many specimens of it as the student pleases. Where a single specimen suffices, it should be attached to the paper either on the right or left side of the centre, and the next sheet should have a specimen on the contrary side, so that when placed in a portfolio they may lie even and flat, which, if every specimen were secured to the middle of the paper, would not be the case, but would bulge out there very considerably. The vacant space on the other side of the centre may be written on, or have a ticket gummed on, showing the name, native country, date of introduction, and any other information, according to the requirements of the collector. On the same side may be attached small paper pockets, similar to the envelopes used for letters, and cut in the annexed form, folding along the dotted lines; these are for the purpose of holding small fragments, flowers, leaves, etc., for examination by the microscope, to avoid the necessity of breaking pieces off the specimen plant, when it is desirable to examine the species by the aid of magnifying power.



(*To be continued.*)

HISTORICAL REMARKS ON THE MOUTAN PÆONY.

BY R. T. W. T.

FOR ages the Chinese have been celebrated for their love of flowers, as well as for their industrious and patient attention to the cultivation of plants, and it appears to have been the only country on the globe where this profitable and delightful employ has not met with serious interruption, since the gardens of China are in all probability older than those of the Babylonian and other ancient nations, which have passed away "like the baseless fabric of a vision." That we did not sooner possess the superb Tree Pæonies of China may be in a great measure owing to the vulgar prejudice which formerly existed, of treating all singular relations as "travellers' stories," and believing only what one's own eyes had seen; otherwise, how are we to account for the long neglect in obtaining this and many other rare plants, which were made known and fully described to us as far back as the year 1656, when the first embassy which the Dutch East India Company made to China returned to Europe? The attendants of this embassy appear to have had freer access to that country than has been granted to any subsequent embassies that have been sent out, and we find they not only passed from Canton to Pekin, but visited and faithfully described everything worthy of notice, and were even allowed to visit the gardens of the Emperor of China; yet this excellent work, which first made known that delightful fruit the pine-apple, the refreshing leaf of the Tea, and the magnificent flower of the *Moutan*, or Tree Pæony, was so much neglected, as a volume of travellers' stories, that little account appears to have been made of its description of the vegetable kingdom, although it was translated into English, and published in London in the year 1669, and from which we shall extract Nievhoff's account of the Tree Pæony, to show not only how faithfully it is described, but that inquiry must have been made as to what part of China it was indigenous.

This author says, under the head of flowers, "There are several rare and well-scented flowers which grow in these parts, that are unknown to those of Europe. In the province of Suchue, near to Chungking, grow certain flowers called *Meutang* (*Moutan*), in high esteem amongst them, and therefore called the King of Flowers. It differs very little in fashion from the European Rose, but is much larger, and spreads its leaves further abroad; it far surpasses the Rose in beauty, but falls short in richness of scent; it has no thorns or prickles, is generally of a white colour, mingled with a little purple; yet there are some that are yellow and red. This flower grows upon a bush, and is carefully cherished and planted in all gardens belonging to the Mandarins, for one of the most choice flowers" (p. 250). Even after this description of the plant it remained unknown to Europe, until the late Sir Joseph Banks, whose mind had expanded itself beyond that of his fellows in general by travel and the study of nature, and who ever alive to benefiting the world by scattering its blessings and its beauties over the remotest quarters of the globe, gave instructions to several merchants trading to Canton to inquire for the *Moutan*, the name by which the Pæony is known in China; in consequence of these applications, numerous specimens were sent to this country about the year 1789, but most of these plants perished in the voyage. About the year 1794 other plants were imported, and since that time the Tree Pæony has frequently been brought from China in a growing state.

This favourite flower of the Mandarins is said to have been cultivated in China upwards of fourteen hundred years, yet the singular inhabitants of that ancient empire think so little of that period as to consider it rather a plant of modern than of ancient introduction. The Chinese writers differ in their accounts with regard to the origin of this shrub, some attributing it to a particular process of culture, by which the common herbaceous Pæony has been converted into this magnificent shrub, which is said to reach the height of eight or ten feet in the province of Loyang, where the soil and climate seem particularly favourable to the growth of this plant. Some of the Chinese authors tell us, and perhaps with more correctness, that the *Moutan* was first discovered growing among the mountains in northern China, whence it was brought into the southern provinces, and there cultivated with the same mania as Tulips have been in Europe, since we are told that some choice varieties of the *Moutan* have been sold in China for a hundred ounces of gold, though we receive such accounts with considerable qualification. It is propagated in China principally by seed, and by this process such numerous kinds have been raised, that they now enumerate no less than two hundred and forty species as they call them, some of which are said to be of delightful fragrance.

The Tree Pæony sold for high prices when first it got into the hands of the nurserymen in the vicinity of London. When these plants were first known in France, Monsieur Noisette, a nurseryman in Paris, sold them from one thousand five hundred francs to one hundred louis each.

When the different varieties of these magnificent flowers are inoculated on the branches of a single plant, it is hardly possible to conceive a more splendid effect than it presents, by its fine lobed foliage and the superb size of its flowers, some being nearly a foot across, and which vary from the finest carmine and the most delicate blush of the Rose to pure white. To Mr. Fortune we are indebted for many of the finest varieties at present grown in England, far surpassing in size and colouring any of the older varieties.

It is easily increased by layers and cuttings, as well as by parting the roots, and may be treated in a similar manner to the Hydrangea, protecting it from the excessive heat of the midday sun, allowing it ample watering when in flower, and removing all superfluous buds before the principal flowers are expanded.

OUR NATIVE ORCHIDS.

BY W. W.

OUR pretty indigenous Orchids and their congeners thrive tolerably well under the following treatment: select a convenient spot, a north border or the north side of a hedge, which is sheltered from midday sun, and protected from cutting winds in spring. Take out the soil to the depth of twelve inches, lay three inches of broken brickbats at the bottom of the excavation, cover them with thin turf parings, and fill up the remaining space with a compost of one-half decomposed soil from an old melon bed, one-fourth peat, and one-fourth rough sand. Plant the roots about three inches deep, surrounding the bulbs with an inch of sand, which will prevent them from perishing in wet weather, and absorbing the moisture when the plants are in a dormant state. In March and April place a light covering of fern or furze over the bed, to shelter them from cold winds, as at this season they frequently get cut off by frosty wind, even in their wild habitats. Those species which have succeeded with me treated in this way are, *Habenaria bifolia*, white; *Orchis morio*, purple; *O. mascula*, purple; *O. maculata*, flesh colour; *O. latifolia*, pink; *Gymnadenia conopsea*, purple; *Herminium monorchis*, green; *Listera ovata*, green; *L. cordata*, brown; *Epipactis latifolia*, purple; and *E. palustris*, purple. The following species are somewhat more tender, and in order to ensure their preservation for several years, they should be potted in the same compost as directed for the bed before described, with plenty of drainage at the bottom of the pots, and also a layer of sand beneath and around their bulbs. When their flower-stalks decay, place the pots close under a south wall or hedge, where little rain can get to them, or lay the pots on their sides to prevent their getting over-wet. In autumn they ought to be placed in a cold frame facing the east or west, but avoid the south, and here they may remain till April. Shift them every spring, clearing away all or nearly all the mould from their roots.

Those that require this treatment are *Orchis pyramidalis*, (syn. *Anacamptis pyramidalis*), red; *O. ustulata*, purple; *O. militaris*, purple; *O. fusca*, brown and purple; *O. hircina*, brown; *Habenaria virescens*, green and yellow; *Aceras antropophora*, green; *Ophrys muscifera*, purple; *O. apifera*, purple; *O. aranifera*, green; and *Neottia spiralis*, white. I find that some few plants of this class, as *Epipactis pallens* (white), *E. ensifolia* (white), and *Neottia nidus-avis* (brown), can seldom be preserved above a single season under any treatment with which I am acquainted. Should any subscriber to the *Cabinet* be so fortunate as to manage them better than I have been able, it would be a service rendered to many cultivators of British plants, if he would communicate his plan through the medium of this work.

Neottia spiralis, although supposed by some persons not to flower in the same spot again for years, will be found, when treated as above, to flower annually, and to increase faster than many of the other species. Should you think this communication worthy of a corner in your valuable work, Mr. Editor, I shall at some future period be happy to give more minute details of the treatment of each particular genus of British Orchidaceæ.

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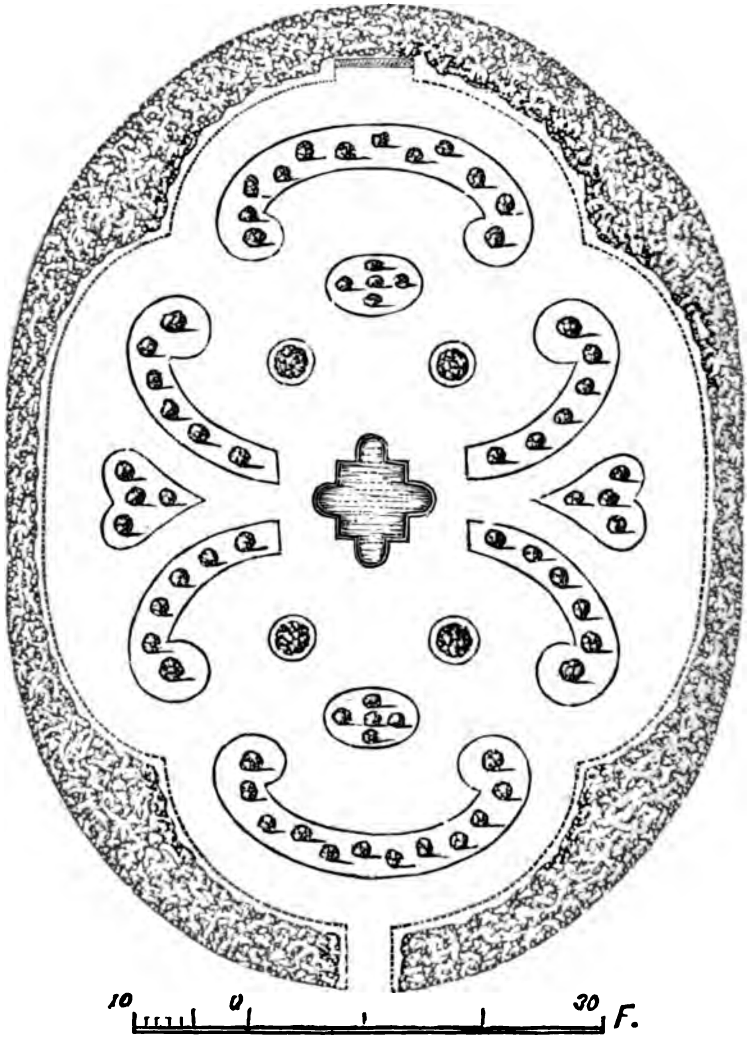
DESIGN FOR A LADY'S PARTERRE.

BY T. RUTGER, ESQ.



THE annexed design, of small dimensions, and simple for laying out, may serve for a lady's flower garden. In order to walk dry at all seasons, it is laid down on gravel, and supposed to have box, or some other edging, for the clumps. The circles, ovals, and small side clumps may be furnished with flowers in mass, and the scrolls with flowers in variety. The whole is surrounded with a close shrubbery, has a small pond in the centre for gold and silver fishes, and a seat at the end of the garden.

ON THE MANAGEMENT OF BOUVARDIAS.

BY MR. S. GRANT, LEOMINSTER.

BESIDES being well adapted for greenhouse decoration, these beautiful half-shrubby plants are hardy enough to suit the open border or flower-bed in the summer season, especially in a warm place. Bouvardias are all readily increased by striking the small side shoots, which for this purpose should be taken off early in spring, inserted in silver sand under a bell-glass, and plunged in a gentle bottom heat; the more woody varieties propagate most freely. Another and perhaps easier method is to divide some of the strongest roots in March, when vegetation is just commencing, cutting them in pieces about an inch long, and potting in sandy loam and peat, after which they will make rapid progress, if plunged in bottom heat, where a temperature of about seventy degrees is maintained. After the young plants have attained two or three inches in height, more air and exposure is necessary, though, when repotted or shifted, a closer atmosphere for a short time encourages their growth. If for out-door planting, they should not be bedded before midsummer, otherwise a slight protection will be necessary. They are also capital things for covering the lower portion of conservative walls, where they will attain about three feet in height, and make a good display. In the house, they are liable to be attacked by green fly, in which case the timely use of tobacco-smoke, and frequently syringing before the bloom is set, will serve to keep this pest down. Air and water may be freely allowed during summer, but should gradually be diminished as autumn comes on, which will allow the wood to ripen. The woody varieties may be kept through the winter in a rather dryish soil, in the same manner as Fuchsias, and the stems pruned, which I have always found to furnish bloom sooner than new shoots from the bottom of the plant. The temperature should be kept at not less than thirty-five degrees in winter; a suitable place for them will be found under the stage of a greenhouse, free from drip. If the plants are intended for bedding, however, next season, let them be cut down, to produce bushy plants, which are better for massing, although they do not flower so early as when treated as above.

NEW AND CHOICE ANNUALS.

ACROCLINIUM ROSEUM, a pretty half-hardy annual, of easy culture, flowering profusely in a mixture of peat and loam. It grows a foot high, and its everlasting-like flowers are of a bright rose colour, somewhat resembling those of *Rhodanthe Manglesii*, although considerably larger in size; like that plant it is a native of the Swan River Colony. *Calliopsis coronata*, an improvement on *C. Drummondii*, which it resembles in habit; the flowers are much larger, of a golden yellow, having a circle of large crimson spots half-way down the florets. *Salpiglossis sinuata*, var. *grandiflora*, the colours are very varied, and the flowers much larger than the old species of this genus, to which they will prove a desirable acquisition; treated as half-hardy annuals they will flower well. *S. sinuata*, var. *atro coccinea*, colour deep orange-scarlet; this variety is useful for bedding purposes. *Tropæolum minus*, var. *coccineus*, when employed for bedding, it flowers more profusely if plunged in the beds in small pots; its habit is very dwarf, and an abundant bloomer, being literally covered with bright orange-scarlet flowers. *Clintonia pulchella atro-violacea*, flowers of a much deeper violet than those of *C. pulchella*, of which the present is a variety. It makes a pretty pot plant, as well as being very suitable for small beds; grown in a mixture of peat and loam, it will flower all the summer. *Clintonia pulchella alba*, a new white variety. *Lobelia ramosa nana*, a dwarf variety of the old *ramosa*, well adapted for bedding; it is a brilliant blue, and of compact habit. *Whitlavia grandiflora*, in habit this resembles *Eutoca viscida*, but its blossoms are large bells of a deep violet, similar to those of a Canterbury Bell; it is a perfectly hardy annual. *Collinsia bicolor alba*, flowers snow-white, produced in abundance, which present a fine contrast with the dark glossy-green foliage, and make it a valuable addition to our hardy annuals. *Nicotiana glutinosa*, a new tobacco plant, flowers red and buff, campanulate, borne in long panicles; foliage fine and large. A half-hardy species. *Sebæa aurea*, a hardy Cape annual, flowers Gentian-like, and golden yellow; it does well in the open ground, but requires to be raised in a hot-bed. *Cosmidium Burridgeanum*, the blossoms, when fully expanded, are two inches across, resembling those of *Gazania uniflora*, a rich chocolate-brown centre, with orange outside. It blooms abundantly from July to October, growing about eighteen inches high, and should be treated as a half-hardy annual. *Sabbatia campestris*, half-hardy, with star-like Gentian flowers, of a rosy pink, with a yellow centre; succeeds well when raised in light soil, in a moist heat. *Ipomœa reniformis*, a stove annual from the East Indies, said to bear large buff-coloured flowers with a violet centre, and handsome laciniated foliage. *Veronica Syriaca*, a dwarf plant, suitable for bedding, being a very profuse bloomer; flowers a lively cobalt-blue and white;

in equal proportions. *Pharbitis limbata*, a fine tender annual, of the Convolvulus tribe; flowers rich violet-purple, with a broad edging of pure white; not so generally grown as its merits deserve. *Linum grandiflorum rubrum*, this is a first-rate annual when treated properly, and of easy culture; flowers free, large, and an intense scarlet-crimson. *Oxalis rosea*, a charming, dwarf, half-hardy annual, an abundant bloomer, rosy purple or lilac; useful for an edging or pot culture. *Kaulfussia amelloides rosea*, an interesting hardy annual; flowers at first deep rose, changing to flesh colour. *Lupinus subcarnosus*, may be treated either as a hardy or half-hardy annual, and succeeds well in pots; flowers violet-blue, the centre of the upper petals marked with a square white spot. *L. pubescens*, var. *elegans*, purple-rose, and white. *L. Hartwegi*, var. *albus*, at first pure white, changing afterwards to blush. *L. Dunnetii superbus*, flowers in long spikes, purple, lilac, and yellow. *Nycterinia Capensis*, a beautiful half-hardy annual for a pot, resembling *Erinus Lychnidea*, the flowers are white, purplish beneath, large, in the evening very sweet scented. *Chenopodium atriplicis*, flowers small and clustered; these, as well as the young shoots and leaves, are covered with a shining, purple, mealy substance, giving it a very attractive appearance; it is quite hardy. *Chænostoma fastigiatum*, deep rose colour; a very pretty plant for borders, growing six inches high; half hardy. *Brachycome celocarpa*, white, a large-flowered variety, growing a foot high; half-hardy. *Sedum cœruleum*, a very pretty little half-hardy annual for pots, being completely covered with small pale blue flowers. *Vesicaria gracilis*, a neat yellow-flowered border or rock annual, flowering profusely, and growing about a foot in height. *Erysimum asperrimum*, a fragrant sulphur-coloured variety, quite hardy, eighteen inches high. *Escholtzia tenuifolia*, sulphur coloured, hardy, attaining about nine inches high, and very neat.

POT CULTURE OF JAPAN LILIES.

BY AMICUS.

WE will commence with the bulbs, in the state they are usually found when they have done blooming, which will be early in November; they may then be removed to a rather warm situation, and as dry as you can command, and give them little or no more water. I generally water lightly two or three times after my plants are placed in circumstances to ripen. A warm greenhouse or pit, kept rather close, if not moist, will effect this important desideratum perfectly. As soon as the bulbs are sufficiently matured, which will be known by the decay of the leaves and stems, they had better be repotted; not that this is of importance at present, but it will economise space, and prevent the operation being neglected until after they have made fresh roots. The soil in which they have been growing ought to entirely removed from the bulbs, and the latter divided as may be thought proper, for there will always be found about the crown of the parent some small bulbs, which may be placed in four-inch pots. If the ripening process has been complete, the roots will not be troublesome; but if not, there will be found a quantity of fresh roots remaining. When such is the case I leave them to themselves for some time longer, for I never pot while I require to cut or break the stronger roots, but merely strip my fingers through them, in order to remove those that are decayed. The pots should be just sufficiently large to receive the bulb and strong roots adhering to it; give a moderate watering to settle the soil, and place them in the greenhouse or cool pit. They will require no further attention until the season begins to excite vegetation, when they must be regularly attended to. Water as soon as you see signs of growth, but sparingly until they have made leaves, etc., to draw up and give off moisture. March will generally be found to be the time when they will commence growth. As soon as they are above the soil, remove them to a situation where they will be near the glass and have plenty of air, for after-success depends upon getting them strong at this stage. Do not allow them to remain in the small pots in which they were wintered until their roots become matted; the best way of managing this is occasionally to examine them. I always shift into the flowering-pots just as the plants have protruded an abundance of fresh roots against the sides of the pots. For strong bulbs with one stem use twelve-inch pots, and for such as produce two stems a size larger. Weaker bulbs, such as produce about seven flowers, will not require pots above eight inches, and offsets of the first year will not require above five-inch pots. In shifting into the flowering-pots, be careful to place the crown of the bulbs about three inches below the surface of the soil, as they produce a quantity of strong roots from the base of the stem. They ought, after potting, to occupy a place near the glass; and avoid a warm house if you wish a strong bloom. As regards watering, they must have a careful supply, neither too much nor too little; but if they can be sprinkled overhead with the syringe before shutting up the house, they will not require much water at the roots for some time. Towards the end of May, if the weather is favourable, they may be placed in a warm sheltered spot out of doors, and ought to have their stems tied to a stake, in order to prevent their being injured by wind. A few plants may be retained in the greenhouse, with a view to have them in flower earlier; indeed, I place some of my bulbs in a moderately close warm house early in March, and I manage to have them in flower early in August, others I retard, to prolong their flowering until October; but a season's practice will be the best guide in this matter. These Lilies are not liable to suffer from the attacks of insects, but the green fly will occasionally make its appearance upon such of the plants as may have been kept over-warm. If so, fumigate at once with tobacco-smoke, or wash the leaves with weak tobacco-water. I have said nothing about soil, for they are not very particular in this respect. I use fresh fibrous loam and peat in equal portions, with a sufficient quantity of sand to render it porous; if peat cannot be had, use leaf-soil. Some say, however, that the flowers are much higher coloured in peat. If you wish to propagate them, it may be effected by means of the scales of the bulbs. Fill a pan with soil similar to that recommended for growing them in, lay the scales upon the surface, and sprinkle a little fine soil over them; give a little water, and place the pan in a close warm atmosphere.

ON THE NATURAL LOVE OF FLOWERS.

BY ALICE.

THE love of flowers is so universally inherent in youth, that scarcely an exception can be found amongst children; whether inhabiting the confines of our cities or exclusively nurtured in the provinces, all have a peculiar interest in the vegetation of the various seasons as they unfold their several charms. We have all of us in the *spring of life* felt ardently and with singular enchantment the *vernal floral* developments. Who, in his suburban rambles, can forget the ecstatic exclamation at the first-discovered Snowdrop, Primrose, or Violet? the unalloyed delight in returning with this first tribute of approaching spring? How the eyes would sparkle with a peculiar lustre when, in the elasticity of youth, we culled from some seemingly inaccessible spot a rare and favourite gem to enrich our posy, which the gentle meadow could not afford! And who is there whose senses have not been regaled with the rich and refreshing perfume of such a nosegay? Alas! where are those senses and those feelings which conduced so much to the bliss of bygone days? Has the Lily lost its sweetness, the Primrose its fragrance, and the Violet its hue? or, rather, is man, from entering on a field of enterprise and speculation, become so completely overwhelmed in cares for his personal aggrandisement and the accumulation of wealth, as to be estranged from the unmingled charms of a garden, with all its endless variety of pleasures and luxuries? Can man be so dead and insensible to the beauties of nature, so ungrateful to a beneficent Providence? Is there no poetry in his composition, no benevolence in his organization? Has the love of gold rendered all his better feelings callous and obtuse? and has he neither time nor inclination to revert to scenes where the avarice of maturer years found no sympathy? Let us rather attribute the situation of such an one to the miseries of an age out of which we are progressively escaping, when all such narrowed and sordid views must eventually fall a sacrifice to the inroads of science and the consequent enlargement of human happiness. The suburban residences which are already thickly studded around our cities, and are daily becoming more numerous, bid fair to incite other feelings and to cherish better hopes; but, alas! as we approach to examine these spots, our hearts are sickened at the portals. The common-place shrubs, numbering some half-dozen species, which economy has taught the builder to distribute, are alone to be found. Had the owner of such a residence retained but a tenth of his school-boy enthusiasm for flowers, his collection of plants would at least have numbered thousands; and be it remembered every plant has its name, and he would have known it; he would have watched it assuming different characters and clothed in its various garbs, and it would have imbued his mind with interesting associations and numberless pleasing incidents. What thousands of moral lessons he would have been taught amidst recreations which the cynic and the latitudinarian never dream of! Could I but disengage him from his calculations, and invite him from his couch by the fragrance of the Hawthorn or the Rose, to admire the majesty of the Oak or the grandeur of the lofty Pine, I should not despair of calling forth his latent feelings; even though his looks indicated that the freshness of youth was succeeded by maturer years, there would still be in store for him, in this department of natural history, endless sources of the highest order of intellectual gratification, endearing him to his family and his abode.

ON RAISING THE CROCUS FROM SEED.

BY MR. E. L. MOOR, TAUNTON.

TO say that little or nothing has been done in the attempt to improve this old and common spring favourite, by raising new varieties from seed, is perhaps not far from truth. I have therefore ventured to forward the following remarks on raising this pretty "bulb" from seed, in the hope that some may be induced to take the matter in hand.

The seeds of Crocuses are best sown, immediately after being gathered, in light dry earth, that will neither bind, nor retain moisture long: but it is not necessary that it should be rich, as that might encourage a too redundant and fatal humidity. Large pots or pans or small shallow boxes of such soil, with a sufficiency of holes and potsherds at the bottom, for the purpose of draining off with certainty all superfluous moisture, are the best receptacles for these seeds, which should be sown thinly (for almost every one will vegetate), and not covered, at the time of sowing, more than half an inch with the mould.

The most suitable aspect or situation for the seed-boxes, until the autumnal rains set in, is a moderately shady yet unsheltered one; permitting them to receive all the influence of the weather, except such heavy showers as would wash bare the seeds. As soon, however, as the autumnal rains commence, it will be highly advantageous to remove the boxes to a warm aspect, and to protect them from all excessive rains, frosts, and snows, by the occasional shelter of a garden frame; allowing them, nevertheless, the benefit of the full air at other times, but more especially after the seminal leaf (for they have but one, being monocotyledonous plants), eager to commence the career of life, urges its fine setaceous point above the surface of the earth. This occurs sometimes about the end of the year, but oftener in earliest spring. After this, it is quite essential that they should have complete exposure to the air, even in frosty weather, for they are prodigiously hardy with respect to cold; screening them, however, occasionally, with loose straw, from other injurious effects of frost, so as to prevent their being raised out of their beds by its baneful effects; remove all the straw covering again as soon as the frost is over.

In this manner the young Crocuses may be treated until the sun acquires sufficient power to dry the earth in their boxes, so as to require daily waterings; for they must have gentle rose-waterings whenever they are quite dry. It will be then found advantageous to remove them to a cooler but not sheltered situation; and here they may remain until their leaves die down, giving them, as just hinted, at all times, and in every situation, while their leaves are growing, such discretional rose-waterings, when the sun is not shining, as they may reasonably appear to require: but never until the earth they grow in becomes dry, nor any whatever after their leaves begin to look yellow. After this period it is necessary to defend them from all humidity, except dews and gentle rains, until the end of August or beginning of September. From weeds and from worms, from slugs and snails, it is almost needless to observe, they should constantly be kept as clear as possible; and if the surface of the earth in their boxes is occasionally stirred with the point of a knife, or fine piece of stick, it will never fail to be attended with beneficial effects, and invigorate the bulbs; operating, no doubt, as a sort of hoeing, and like that important practice, as the writer of this paper conceives, proving salubrious to vegetables of every denomination, not only by lightening the soil, but by admitting new accesses of atmospheric air towards their roots, and thereby facilitating and stimulating their absorbent inspiration of its oxygen, without a due supply of which all vegetables eventually become feeble.

If, notwithstanding the precaution of thinly sowing the seeds, the plants in any of the seed-boxes should have grown so thickly together as to have incommoded each other, it will be desirable to have such taken up, and replanted immediately further asunder, in fresh earth, and about three quarters of an inch deep. But if they are not too crowded they will require no shifting, this, their first, autumn, but merely about a quarter of an inch of fresh mould sifted over them, previously stirring and cleaning the surface of the old from moss and weeds, and observing not to bury the young bulbs deeper than three quarters of an inch, or an inch at the most. The second season requires exactly the same management as the first. But as soon as their second year's foliage has passed away, the roots should all be taken up, and replanted again the same or following day in fresh earth, of the same kind as before, about an inch deep, as much apart, and treated as above. Nor does the third season demand any alteration in their management, sifting over them in autumn half an inch of fresh earth.

The following spring, if they have been duly attended to, most of them will show flowers (a few perhaps having done so the season before) in the midst of their fourth crop of leaves, fully rewarding with the cheering colours of their new faces all the preceding assiduity and care.

The seedling plants, after they have flowered, may to all intents and purposes be considered and treated as old ones, and, after their leaves have passed once more away, may be taken up, and replanted in the open borders of the garden for good, at about two inches apart, and as many deep; they may be placed either in groups, patches, edgings, or full beds, and will flower strongly the ensuing spring.

EARLY BLOOMING ACACIAS.

BY A LADY AMATEUR.

MANY plants, of which the natural season of blossoming under glass is in the winter or early spring months, acquire additional value from that circumstance, because their intrinsic beauty is then heightened by contrast with the "desolation that reigns without." Many of the New Holland Acacias possess this desirable property, which in some species is combined with exceeding beauty, as well as gracefulness of habit; consequently there are no plants better adapted for ornamenting a conservatory, where they can be allowed sufficient room to display unconfined their elegant growth. One of the finest species for this purpose is *Acacia dealbata*, of which there is a splendid specimen, now in the height of its beauty, in my own conservatory. I have seldom seen a plant of any kind equal in beauty to this, its wide-spreading branches being completely covered with a garment of green and gold, or more strictly speaking, with green and deep lemon colour; the latter colour greatly predominates, however, for the flowers are so numerous that they almost hide the pretty bipinnatifid leaves. This tree roots into a border beneath the floor of the house, and its stem was originally trained to one of the pillars that bear up the roof; but the stem is now larger than its former support, and the branches extend in different directions to a distance of several yards. It has been planted about eight years. A fine plant of *Acacia vestita* grows against another of the pillars. This, from its profuse flowering and pendulous habit, is a very handsome species, and requires much less room than *dealbata*, which precedes *vestita* in flowering by nearly a fortnight. To these might be added other desirable kinds, as *Acacia armata*, a very free-flowering species, with flowers like golden balls; *A. Lophanta*, with long spikes of whitish flowers; *A. verticillata*, with whorls of leaves like spines; *A. melonoxylon*, the Black Wattle of the Australians, with very curious leaves, the footstalks of which look like leaves, with the real leaves hanging to the points of them; and *A. pubescens*, a very elegant species, with drooping branches and racemes of ball-like flowers, borne in the greatest profusion. Indeed, all the species of this genus are highly interesting, and most of them elegant ornaments for the greenhouse or conservatory, deserving of general cultivation.

DESCRIPTIVE REMARKS ON THE BEST HOLLYHOCKS.

BY THE FOREMAN OF A LONDON NURSERY.

THE following list contains such varieties of the Hollyhock as I know to be deserving of cultivation, and having made my descriptions carefully from the flowers when in their best condition, at various nurseries and shows during the past year, they may be fully relied on:—*Beauty of Cheshunt* (Paul), a noble flower, pale rosy red, spike close, and habit very free. *Beauty of Walden* (Chater), clear rosy pink, a fine, large, and full flower. *Criterion* (Bircham), base of the petals purple, shading off to lighter, a full flower with broad guard petals, distinct in character. *Empress* (Chater), a fine buff-coloured flower. *Eugenie* (Chater), saffron-yellow, delicately shaded, compact and full. *Eva* (Roake), a beautiful flower, delicate peach colour, centre fine and round, large. *Golconda* (Chater), rosy orange, full. *Hon. Mrs. Ashley* (Roake), light rosy carmine, flowers large, and spike very compact. *Ignea* (Chater), salmon-scarlet, large, full, and very double. *Izaak Walton* (Holmes), slaty grey, shaded, very compact, a nice flower. *Jabez Chater* (Chater), salmon-red, a noble flower, very full. *Lady Middleton* (Chater), rosy red, flowers full and large, spike extra. *Lemonade* (Bircham), the base of the petals purple, shading off to sulphur-yellow, and sometimes tinged at the edge with chocolate-brown, a distinct and fine variety. *Lizzy*

Improved (Paul), delicate fleshy peach, fine form, and very double. *Lizzy Roberts* (Chater), very pure white, excellent form. *Louis Napoleon* (Paul), veined lilac, base of the petals maroon, fine and full. *Mr. Joshua Clark* (Chater), extra fine dark crimson-red. *Ochroleuca* (Chater), pale straw colour, a full flower of large size. *Omar Pacha* (Bircham), straw colour, lower parts of the petals chocolate-brown, a slight purple veining is often apparent, distinct and fine. *Primrose Perfection* (Paul), light primrose-yellow, form good, and spike very large. *Purple Perfection* (Bircham), a distinct light purple, form good, and substance stout. *Queen of Whites* (Paul), a full, fine, and stout white flower of great purity, spikes large. *Sir Charles Napier* (Bircham), deep velvety maroon, thick glossy petals, fine form. *Sir William Middleton* (Chater), salmon-buff, large, and very full. *Solfaterre Improved* (Fellowes), clear golden yellow, immense spikes of excellently formed flowers. *Sulphur Queen Improved* (Chater), creamy yellow, flowers very full, and of good size. *Walden Masterpiece* (Chater), lemon, tinged with pink, form and substance excellent. *Yellow Model* (Bircham), primrose or pale sulphur, with chocolate-brown base, good form.

Some few of the varieties described above are new, and consequently high in price, although the majority are to be had at a moderate rate, and all are such as will not disappoint the purchaser.

THE CINERARIA.

BY MR. WILLIAM ROGERS.

LET me urge a few words in favour of the Cineraria for decorating the conservatory during the whole of the winter and spring. Taking into consideration the great range and variety of colour, abundance of bloom, dwarf, compact, and neat habit of growth, and easy management, there are but few things better adapted to the purpose. To ensure good seed I always save my own from the best varieties, and sow it early in March. As soon as the young plants are large enough to prick off, I insert about a dozen in a pot of forty-eight size, by which plan they occupy but little room, and become good strong plants. By the middle of May I pot them off into sixties, and place them in a cold-pit for a fortnight or three weeks, when they are shifted as the pots become filled and set out under a north wall, where they are screened from the direct sun, which they do not well bear. I keep repotting them as often as they require it in the course of the summer, and apply liquid manure occasionally. When the middle of September has arrived, I return them to the cold-pit as a protection from too damp and cold an atmosphere, and in a month remove them to the greenhouse or conservatory, at which time many of the plants will be coming into flower and continue in bloom a length of time. A succession for spring months may be secured by additional sowings from April to June.

To have specimen plants of the superior kinds to flower in May, my practice is as follows. When the bloom is past, I cut them down and put them in a shady place, where they will throw out plenty of young stock, which is taken off when of sufficient size, and potted into sixty-sized pots, in leaf-mould and sand; removed to a frame or pit, where they may obtain the benefit of a little bottom heat, they soon strike, but must be kept shaded. I pot them off into forty-eights next, and replace them in the frame till they are sufficiently established, after which I gradually harden them off, repotting them, and using manure-water as they require it. In all future shiftings, however, I choose a different compost to that above stated, taking equal parts of rich loam, leaf-mould, and decomposed hotbed manure, with a little coarse sand. Plenty of drainage is necessary to the health of the plants. If I perceive any likelihood of frost I transfer the plants to the greenhouse, but give them no more assistance from fire-heat than is just sufficient to keep frost from them. Towards the commencement of February I give them a final shift into twenty-four-sized pots. They will make good progress if assisted with liquid manure, for if suffered to become dry they soon suffer.

The following descriptive list of some very fine varieties may serve the amateur to make a selection from.

ALMA (Rogers), fine white, plum-coloured tip.
ATTRACTION (Dobson), fine, violet-crimson.
CONSTELLATION (Henderson), clear white, deep blue edge, very fine.
EUPATORIA (Rogers), clear blue.
FASCINATION, dark blue, shaded, white around the disk.
GARLAND (Henderson), clear white and rosy purple, fine.
LADY CAMOYS (Sutton), white, with an intense blue edge and disk.
LORD STAMFORD (Henderson), white, with a fine edge of sky-blue.
MAGNUM BONUM (Turner), bright rosy purple, with a white ring round a black centre, large and good.
MAJOR DOMO (Henderson), puce, shaded with purple and white; large, and an early flower.
MR. SIDNEY HERBERT (Henderson), shaded purple.
NOVELTY (Henderson), damson-purple, with a large light disk; dwarf, and very showy.
OPTIMA (Boussie), white, with a broad dark blue edge and disk; fine form.
OPTIMA (Hopwood), white, with a broad crimson edge and disk; early, dwarf and showy.
PRINCE ARTHUR (Henderson), scarlet-crimson, broad petals, and brilliant variety.
PRINCE OF PRUSSIA (Henderson), bright azure-blue, with a small white circle around the disk.
PURPLE STANDARD (Turner), bright purple, with a white circle around the disk.
ROSE OF ENGLAND (Boussie), white, margined with violet-purple, dark disk and fine form.

REMARKS ON THE CULTIVATION OF GLOXINIA MACULATA.

BY MR. ANDREW WELLS.

ALTHOUGH this is an old species and very seldom seen in collections, it is, when well grown, one of the handsomest and most distinct of the genus. It is often kept for years without blooming, on account of improper treatment; if, however, the following remarks are carried out it may be flowered every year to perfection. Early in March, pot off into four-inch pots, in boggy peat and a little sand, observing to put only one plant in a pot, and should any suckers arise, they should immediately be removed. As soon as they show signs of vegetating, place them in a moderate bottom heat, and water freely. When the pot is filled with fibres shift them into two sizes larger, and continue with a free supply of water for about ten days or a fortnight, then they may be placed in pans, kept constantly filled with water, still clearing off the suckers, should any make their appearance. By this mode of treatment they will produce spikes of flowers from two to three feet high. When they have done flowering they may be taken out of the pans and placed with other plants in the stove, not giving more water than is necessary to keep them in health until the flower-stems begin to decay, when they should be placed on the dry shelves till the first week in January, at which time commence watering sparingly until they again make their appearance, when they may be treated as above.

ON RAISING AURICULAS FROM SEED.

BY J. T., WAKEFIELD.

I HAVE been a cultivator of Auriculas for many years, and have raised a great number from seed, amongst which are some excellent kinds. The compost I use consists of equal parts of fresh loam, decayed leaves, and well-rotted dung (cow-dung is preferable), and about one sixth of river-sand. This compost is well mixed, and frequently turned over, for three months previous to using. The pans I use for containing the soil are made of the same material of which garden pots are usually made, the shape is the same as a wash-hand basin, without any hole in the bottom. Before the compost is used for sowing I fill the basin, and place it in the oven until it is so hot that I cannot bear to insert my finger in it; this destroys the seeds of any weeds, or the eggs of insects, which may be deposited in it. After taking it out of the oven, I spread the soil to cool; when quite cold, I fill the basin to about an inch and a half from the top, around the sides, but am careful to have the soil as high in the middle as the edges of the basin, so that it gradually rises from the sides to the centre of each. The soil is then pressed by a small board, to make the surface smooth and even. The seed is sown in a regular manner, and covered with very fine sifted compost, about the depth of one-sixteenth of an inch, after which it is again pressed down even. This being done, I take a soft brush, dip it in water, and give it a shake, to throw off heavy drops; I then shake it over the soil till it is well moistened, after which I water close round the side of the basin, so as to keep the compost wet, for although Auricula plants, when full grown, will not endure much wet, yet the soil requires to be kept very moist, in order to get the seed to vegetate. The time I usually sow my seed is from the first to the middle of January. When sown, I cover the basin over with a bell-glass, or a large flat piece of glass, and place it either in a window with a south aspect, or in the front of a greenhouse. About the beginning of March the plants are generally springing up; in about a fortnight afterwards the strongest are transplanted into fresh compost, as before. In taking up the plants, I use a small pair of tweezers, made of ivory, with very narrow points, so as to take up each plant by the seed-leaf; likewise a piece of ivory, not more than one-eighth of an inch broad, for the purpose of making a small cleft in the soil to admit the root of the plant, which when placed, the soil is carefully closed up. I plant them about an inch apart, and water them well afterwards, as before directed. In about five or six weeks after transplanting, they are again taken up, and replanted in basins, at a greater distance from plant to plant. I then venture to water them, through the medium of a watering can, with a finely perforated rose. At the end of a few weeks, I again remove the plants into other basins, placing them at a greater distance, and in August place each one in a pot, of the size I use for regular blooming plants; care is taken that they are well drained.

ON GROWING CLERODENDRON SPLENDENS.

BY CLERICUS.

IF properly managed this plant makes a fine object in the stove, and to obtain handsome, well-formed specimens is by no means difficult. The large and brilliant trusses of scarlet blossoms seen amongst its dark shining foliage render this plant a general favourite with all who have the pleasure of viewing a well-grown plant in full flower. It may be increased by grafting on the stronger-growing kinds, or by cuttings. For the latter it is best to select short-jointed shoots of young wood, rather firm, however, towards the lower joint, which will strike readily under a hand-glass, in sandy loam, if plunged in a moderate bottom heat. When rooted, pot them off into small pots, using equal proportions of leaf-mould, sandy peat, and turfy loam, and place them in a warm pit or stove, with a moist atmosphere, and somewhat shady; bottom heat is beneficial, but not absolutely requisite. After they become established they will require a little air and more light. In all future shifts a small proportion of cow-dung, well rotted, may be mixed with the compost. By the month of September they will, with due attention, be nice little specimens just coming into bloom, and continue in flower through the early winter months; for winter decoration in the stove few plants are more deserving of culture. For grafting, the *Clerodendron splendens*, *C. Kæmpferi*, or *odoratum*, are suitable for working on, being vigorous kinds; short-jointed wood, well ripened, is best suited for this purpose, and each pair of eyes or leaves will make a graft. If done early in spring they will make nice plants in the course of even a single season.

GYNERIUM ARGENTEUM.

PAMPAS GRASS.—This noble plant will probably form one of the most useful objects for decorating the lawn or flower garden that has been introduced for many years. In stature it rivals the Bamboo, being described as growing in its native plains several times as high as a man. The leaves are hard and wiry, serrated at the edge, not half an inch broad at the widest part, of a dull greyish green, much paler below. They are edged by sharp points of teeth, strong and horny. The flowers appear in panicles, from a foot and a half to near three feet in length, resembling those of the common reed, but of a silvery whiteness, owing to their being covered with long colourless hairs, and themselves consisting of colourless membranous glumes and scales. It has proved itself to be quite hardy, having stood the past very severe winters. It has had the foliage bleached and killed by the frost, but the roots have remained uninjured, and have pushed afresh and recovered their wonted vigour. Such, at least, has happened in the Society's garden. Before it was hurt by the intense frost, to which it was fully exposed without any protection, in 1855, it had acquired the following dimensions:—Height, from the ground to the curve of leaves, 7 feet; height to the summit of the plume of flowers, 11 feet; diameter of the tussock, 9 feet; length of one of the leaves, 8 feet; number of flower-plumes, 17; length of flower-plumes, 2 feet. Let the reader conceive such to be the magnitude of one single individual of a reedy grass, whose grey, hard, narrow leaves curve most gracefully from the centre to the circumference, forming a thin but huge tuft; add to this many slender flower-stems darting into the air, and gracefully poising on their summits a white airy mass of light scales, whose polished surface can only be rivalled by the delicate work of the silversmith; place this a little above the eye, among rocky ground; let it be well backed up by some dark foliage, and a faint idea may be formed of the general appearance of the Pampas Grass. It may be propagated by dividing pieces from the side of a large tussock, yet the most ready way is by seed, which should be raised in the following manner:—Sow the seeds as soon as gathered, with little or no covering, in pans or pots, well drained, and filled with a mixture of light sandy loam and peat in equal parts, and keep the soil rather dry after sowing for a few days, then water freely. Place the pans or pots in a warm frame or pit until the young plants are fairly up, afterwards place them where they will be cooler and more exposed, in a pit or greenhouse, but not in a drying situation. When the plants are large enough, pot them singly in small pots, giving a liberal supply of water afterwards, at all times. In no case whatever must the young plants be allowed to get dry at the roots, from the time they first vegetate until they have been planted out. (*Hort. Soc. Journ.*)

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NEW AND SELECT GARDEN HYBRIDS.

FUCHSIA, ETOILE DU NORD—Tube and sepals crimson-scarlet, the latter stout and well reflexed; corolla very dark violet-maroon; considered to be the deepest coloured of any Fuchsia yet out.

12. Fuchsia, Star of the Night.—Tube and sepals scarlet, wellreflexed; corolla large and open, rosy scarlet, shaded off towards the margin to a plum colour. The first season, this variety produced its flowers striped with rose colour, but since has only partially exhibited this peculiarity.

13. Fuchsia, Fairest of the Fair.—Tube and sepals white, the latter being of large size, and tolerably well reflexed; corolla large and showy violet-crimson. A fine showy flower.

14. Fuchsia, Tristram Shandy.—Tube and sepals rosy red, stiff, and the latter thrown back acutely; corolla pale lilac, open, and of good size. A free-growing variety. The novel colour of the corolla renders it a very distinct flower.

15. Gloxinia, Tarragona (Jæger).—Of the erect class. Interior of the tube crimson, fading off at the base to white, and dotted in that place with small crimson spots, lip pure white; a fine large flower.

16. Gloxinia, Sir Hugo (Jæger).—One of the older class, having intense violet-purple flowers, with a faint light marking on the lower limb. This will prove to be one of the finest kinds of this colour yet produced.

17. Verbena, Marmion (Breeze).—This variety is of a colour hitherto scarcely seen in the Verbena, an intense crimson-maroon; it has a large light eye, and produces fine noble trusses.

18. **Bouvardia, Hogarth** (Parsons).—Habit strong and robust, flowers produced in a large truss, bright Indian red; the foliage remarkably fine for this genus, some of the leaves measuring from four to five inches in length, by two broad. The present as well as the following hybrid Bouvardias were raised between *B. longiflora* (white) and *B. leiantha* (scarlet). They resemble the latter in habit and foliage, whilst partaking more of the former in appearance of flowers.

19. **Bouvardia, Rosalinda** (Parsons).—Fine compact trusses of bright salmon flowers; a beautiful variety, of good habit and large blossoms.

20. **Bouvardia, Oriana** (Parsons).—Salmony scarlet flowers, large and fine.

21. **Bouvardia, Laura** (Parsons).—Delicate pink or flesh colour, fine trusses, of spreading habit, and broad pointed foliage.

22. **Geranium, Culford Beauty** (Grieves).—One of the same class as the well-known Flower of the Day; it is of very robust habit, with large foliage, but instead of a white margin, the leaves have a broad edging of distinct clear sulphur colour. The flowers are of a brilliant orange-scarlet, borne in large trusses.

23. **Calceolaria Montecuculli** (Sanders).—A shrubby or bedding variety; the flowers, although possessing no improvement in form over old varieties, are of striking colours, namely, dark crimson, with a large golden yellow cap.

24. **Delphinium Montmorency.**—Trusses of bloom very long, light clear blue, better in this respect than Hendersoni, form and habit good.

NOTES ON NEW AND SELECT PLANTS.

STOKESIA CYANEA. Nat. Ord. *Compositæ.*—A very attractive plant, bearing flowers resembling in some measure those of a China Aster, of a fine blue, with pale yellow centre. Although introduced to Kew Gardens nearly a century ago, it is little known, and is one of the rarest plants, even in its native country, the United States, where it grows in Carolina, Georgia, and Louisiana. Named in honour of Dr. Stokes, of Dublin. (*Bot. Mag.*, 4966.)

34. **Lobelia Texensis.** Nat. Ord. *Lobeliaceæ.*—An old but interesting plant, from Texas; the date of its introduction is, however, unknown. It is a very free-blooming species, bearing bright red flowers, of rather small size, and has by some been confounded with *L. cardinalis.* (*Bot. Mag.*, 4964.)

35. **Ansellia Africana.** Nat. Ord. *Orchidaceæ.*—From Fernando Po, the opposite coast of Africa, and Natal. It is a fine Orchid, though by no means new, and attains a considerable size. The flowers are numerous, pale green, blotched with dull purple, borne in abundance on long dependent racemes. Produced in the stove in January. (*Bot. Mag.*, 4965.)

36. PHYTOLACCA ICOSANDRA. Nat. Ord. *Phytolacceæ.* Syn. *P. Mexicana.*—A plant of no particular beauty, either as regards leaf or flower, but worthy of attention from its pretty, deep purple-black berries, which are about as large as a small pea, at first green, but afterwards changing almost to blackness, and very glossy, borne in long and graceful racemes. It fruits well in a warm greenhouse in the summer months, at which season it bears flowers and berries very abundantly. The leaves are three or four inches long, elliptical ovate, rather fleshy; the branches are somewhat tinged with purple; flowers small, pale green, or yellowish. A native of Mexico. (*Bot. Mag.*, 4967.)

36. RHODODENDRON CAMPYLOCARPUM. Nat. Ord. *Ericeæ.*—Another handsome species from Sikkim-Himalaya, in the collection of Messrs. Standish and Noble. It inhabits rocky valleys at an elevation of from 11,000 to 14,000 feet above the sea-level, and is very abundant in the above-named district. Growing naturally in so elevated a position, it might be expected to blossom in the open air of our climate, but being an early flowerer, it will not come to perfection without the protection of a cool greenhouse or frame. In its native habitat it is a bush of about six feet high, with foliage of a light cheerful green, and flowers of a delicate pale yellow or sulphur, about two inches across the mouth, exhaling a peculiar, delicate odour; they are borne in large heads. The leaves are from two to three inches and upwards in length, and about two in breadth, resembling those of *R. Thomsoni.* Dr. Hooker says this plant "may be regarded as the most charming of the Sikkim Rhododendrons." (*Bot. Mag.*, 4968.)

38. TAINIA BARBATA. Nat. Ord. *Orchidaceæ.*—A curious Orchid, growing on trees of *Gordonia*, among the Khasia hills of India. The flowers are produced in long loose panicles of two feet or more in length, yellowish, streaked with red, and of no great beauty; the sepals are almost erect, and the petals reflexed. In Messrs. Lodige's collection, and also introduced by Mr. Lobb to Mr. Veitch's nursery at Chelsea. (*Gard. Chron.*, 192.)

39. BERBERIS PARVIFLORA. Nat. Ord. *Berberideæ.*—This is a small hardy evergreen, presented to the Horticultural Society by Messrs. Lee, of the Hammersmith Nursery, and noticed in the Journal of the Society. The habit is neat, flowers deep yellow, in small loose panicles. Leaves an inch and a half long, of a bright glaucous green. Native district unknown. (*Hort. Soc. Journ.*)

40. PLATYCODON GRANDIFLORUM, *var.* SEMI-PLENA. Nat. Ord. *Campanulaceæ.*—A variety, with semi-double white flowers, was discovered by Mr. Fortune in cultivation at Shanghai, whence it was introduced by that gentleman to our gardens; the flowers are composed of two rows of petals, pure white, resembling a star in form. It will most likely prove hardy, or require no farther protection than that afforded by a cool frame or pit. It strikes readily, in almost any soil. (*Hort. Soc. Journ.*)

41. ONCIDIUM BIFRONS. Nat. Ord. *Orchidaceæ.*—Of no great beauty, yet singular structure. This Oncidium will not attract much attention; the flowers are small, yellow, and sparingly produced. In the collection of Messrs. Loddige, who received it from Mexico. (*Gard. Chron.*)

FLORICULTURAL OPERATIONS FOR MARCH.

IN THE FLOWER GARDEN.

GENERAL OPERATIONS.—Many operations directed for last month may yet be pursued. Let every possible effort be made to have the soil in a condition to receive seed, etc. *Grass* mixed with clover seeds may be sown, to renovate all bare and patchy places; keep the lawn and verges in trim order, and roll it occasionally; should worms appear, apply lime-water. *Gravel,* keep clean, and relay where necessary. *Hoeing* should be performed with caution; many things just coming out of the ground are liable to injury, unless this operation be performed with much care. *Layers and rooted cuttings of Shrubs,* etc., should be transplanted as soon as they are found sufficiently rooted. *Seeds* of hardy annuals may be put in whenever the weather permits. *Slugs* require looking after, as they begin to show themselves in increasing numbers. *Surface* of beds and borders should be kept neat, and well stirred among shrubs and herbaceous plants. *Turf* may be laid down. *Weeds,* keep down by constant attention to neatness.

CULTURAL DEPARTMENT.—*Alpines,* the season has arrived for repotting, which must be done with the compost suitable for each species; many will require dividing to increase stock, which should be done with care. It will be necessary to place them in a close pit for a short time to get them well established, they may then be set on ashes on a sheltered north border; water may be more freely given. *Annuals,* hardy kinds may be sown, and autumnal-sown plants transplanted. *Biennials and Perennials,* sow seeds of, and plant or divide the roots, if mild. *Calceolarias,* such as have been in the cutting-pots through the winter may be planted out about the middle of the month, three or four inches apart, on south borders under a wall, and protected by mats at night. *Carnations and Picotees,* early in the month is the time for potting; the soil should be strong rich loam, with a portion of old cow-dung and coarse sand; examine it well, to see there are no wire-worms in it. The pots should be well drained, and after potting put them in an airy place of the garden, under a framework of hoops, that they may have mats thrown over them in case of frosty nights, cold drying wind, or heavy rain. *Evergreens,* give liquid manure to those transplanted last autumn. *Hollyhocks* may be planted at the end of the month for a succession of bloom. *Hyacinths* will be pushing their flower-stems, sticks may be put to those most forward; stir the beds and lighten the soil round the plants. *Lilium lancifolium* may now be, if desired, turned out into the open ground; those in pots will require to be repotted as soon as they begin to push; let the pots be well drained with crocks and charcoal, using a compost of strong friable loam and peat in equal proportions, adding a little coarse river-sand. *Pansies* if not previously top-dressed, it should be done without delay. Seedlings wintered in pans may now be planted out. Look well after slugs, which are very destructive as the plants begin to grow. Still protect the beds from cutting winds. *Pinks,* if beds were not planted in autumn, let it be done early this month, being careful to keep the balls entire; press the soil firmly round them, and protect from winds. Seed may be sown about the middle of this month, in light vegetable mould; place the pans or pots in a westerly aspect, and cover with a sheet of glass, to prevent the soil becoming too dry. *Pæonies, herbaceous,* if increase be required, it may be easily effected in the following manner. Over a patch or tuft, place a box or pot without a bottom, about twelve or fifteen inches high, and fill it up with well-worked vegetable mould; the stems have then to make their way through the earth before they can produce any flowers, and will throw out tubers, which may be cut off in the autumn or following spring. *Polyanthuses* in beds should have the surface-soil stirred up, and an addition of fresh compost, consisting of old dry cow-dung and rich loam in equal parts, firmly pressing it around the plants; liquid manure may be given once or twice a week, and soft water on other occasions. *Ranunculuses*, protect from frost by covering the beds with mats or dry fern; look over the roots planted last month. *Rockets, double*, turn out of pots into borders; good loamy soil suits them best. *Roses*, during the first week of the month, the shoots of the wild stock may be trimmed off to within one bud of that which has been inserted; the object is to leave a wild bud, to draw up the sap to that which has been budded on; the former may be left until it has attained two or three pairs of leaves, when it is to be stopped. By this time the other will begin to push well, and when it has attained the length of four to six inches, cut off the sap-shoot at the base. Any portion of the stem of the stock remaining above the highest budded branch should be cut off. Early in the month pruning should be done; leave a couple of buds on each shoot of last year's growth. Whenever a new shoot springs up at the base of an old branch, it is better to cut away the old wood close to the base, leaving the young shoot to supply its place. *Sweet Briar*, if sown in a single row, makes a good edge on poor soils, where other plants would not succeed. *Tigridias*, plant in beds about four inches apart. *Tulips*, it will be necessary to protect the beds with a covering of canvas in unseasonable weather, so as to prevent rain or snow getting among the leaves, which causes the bulbs to rot; still stir the surface-soil, to keep it sweet.

IN THE GREENHOUSE, COLD-PIT, AND FRAME.

General Operations.—*Air*, admit in the greenhouse whenever the temperature outside is over thirty-five degrees; should the weather be foggy and damp a slight fire is of advantage, in keeping the atmosphere of the house dry. *Climbers* may be pruned and tied up; keep in mind whether flowers are produced on the old or young wood when this operation is performed. Such as are on trellises will require constant attention and training. *Fires* will seldom be required, unless the weather be very severe. *Hotbeds* may be got ready for sowing greenhouse and tender annuals, or striking cuttings. It will also be useful for grafting and inarching Camellias, Correas, etc., which succeed best in such a situation. *Insects*, look after and destroy. *Leaves and stems* may be sponged with a little soap and water, to cleanse them and promote health; syringe afterwards with clean water. *Syringe* with tepid water on bright days, this conduces to health. *Water*, a slightly moist atmosphere may be kept during drying winds, which frequently prevail this month. As the spring is fast approaching, attention should be given to have everything in good order in this department.

Cultural Department in the Cold-pit and Frame.—*Antirrhinums*, take off cuttings of any choice sorts, strike in silver sand on a moderate hotbed. *Annuals, tender*, such as German Asters, Cobœas, Stocks, etc., towards the middle of the month sow on a hotbed, and towards the end give air, to prevent their being drawn up. *Auriculas* will require constant attention with regard to air and water; give all air you can, to prevent weakly drawn-up flower-stems; they require but little manure-water, and this should be given at noon, so that it may be drained away before the frosts of night come on. Thin out the pips, so as to have five, seven, or nine on a stem. If the sun comes out strongly towards the end of the month, shading will be necessary. Examine the offsets, and give water with judgment. Transplant seedlings while in the seed-leaf, especially if thickly sown. *Carnations and Picotees*, attend to watering all those in frames. *Chrysanthemums*, pot off those struck last month. *Dahlias*, the plants struck early, and in small sixty-sized pots, will now probably require repotting into large sixties, and a sufficiency of air must be given on all mild days, to keep the plants robust. Seedlings may be potted off, kept cool and robust. *Fuchsias*, cuttings may be put in and plunged in a gentle hotbed. *Gladioli*, tender kinds may be planted in pots and placed in a frame; when rooted they should be removed to a cool pit, and allowed all air possible. Seed saved last season should be thinly sown in pans of light soil, as a mixture of peat, leaf-mould, and sandy loam; cover half an inch deep and place in a close frame, where it will speedily vegetate. *Ixias, Sparaxises, etc.*, in frames, take off the lights during the day in fine weather, replacing them at night. *Mimuluses* in pots, take off cuttings and plant them singly in sixties, the best compost for them is made of two-thirds loam and one-third of leaf-mould and sand; plunge in bottom heat; when well rooted, place them in the cold-pit. *Polyanthuses* in pots, top-dress them now, removing the loose soil from the top, replacing it with rich loam and old dry cow-dung in equal parts, firmly pressing it around the plants. They should be placed in a frame facing the south or south-east. Guard against the attacks of green fly, by fumigation with tobacco. *Primroses*, *Chinese*, sow seed in a light rich soil, in flat pans, and place in a hotbed frame; when up allow the young plants plenty of air. *Salvia patens*, to propagate for bedding purposes, place the roots in gentle moist heat, in light soil. When the young shoots are two or three inches high, take up the roots and divide them; pot off and place in heat for a few days, and then harden off. *Stocks*, *intermediate*, when they show flower, select the double from the single, planting the latter, to save seed from, by themselves. Repot the double ones into twenty-fours, and allow them to stand in the frame till the end of the month. *Tuberoses* in pots, plant the bulbs two inches deep in sandy loam and cow-dung, and plunge them in a gentle hotbed. Be careful not to give much water till they come up, and admit air gradually. *Verbenas*, cuttings may be taken and those already rooted should be potted in small sixties in light rich soil.

CULTURAL DEPARTMENT IN THE GREENHOUSE.—*Azaleas*, keep down green fly and thrip; water liberally those in bloom, and to retard such as are intended for late flowering; place them in a shady cool part of the house. *Calceolarias*, water more freely, and shift for succession; such as are flowering may have a little manure-water. *Camellias*, any pruning necessary may now be performed; few plants succeed better under judicious pruning than the Camellia. *Cinerarias* may have manure-water occasionally, and should be constantly looked to for preventing the ravages of green fly. *Cyclamens*, on the flowers appearing, remove them where they may have plenty of sun and air; they should be abundantly watered with tepid water in the mornings. *Diosmas*, *etc.*, should have air when making their growth and when flowering, after which they will bear pruning to advantage; cuttings may be put in. *Epacrises*, give water more freely; stock plants may now be shifted, and shoots stopped in where too rambling; give air. *Ericas*, look them over and support with small sticks, arranging each branch, as the spring-blooming varieties are becoming advanced; let them have abundant air when not frosty, and some sun. Water freely if well drained, and shift such as require it. *Fuchsias*, seedlings may be potted off into small pots, and shifted whenever the roots appear at the side of the ball; continue last month's treatment. *Habrothamnus elegans*, attend to training. *Liliums*, water more freely, and place in a light airy situation. *Mitraria coccinea* and *Cantuas*, propagate a stock of each from the spring growth, which will be nice little plants by the end of May. *Pelargoniums*, stop back plants intended for bloom in July; give air, except cold winds prevail; give sufficient water to moisten the whole ball whenever required; keep down the green fly. *Pomegranates*, this is the best time to propagate by layers; select some of the young branches, and layer them the usual way without cutting. *Primroses*, *Chinese*, still attend to as last month. *Roses* in pots should have plenty of air in favourable weather; such as are for exhibition or a display in June may be pruned the middle of this month; look after insects. *Scarlet Geraniums*, shift for specimens; a little bottom heat will be an advantage.

IN THE STOVE.

GENERAL OPERATIONS.—*Air*, admit in mild weather. *Baskets*, ornamental ones, for suspending plants in, may be got ready, and such things as Achimenes, Æschynanthuses, and Lycopods may be planted in them, either mixed or separate, which make a very delightful appearance in the house. *Cuttings*, put in and pot off such of last month's as are rooted. *Insects*, keep a watchful eye for these pests. *Potting*, spring potting should be finished by the middle of the month. *Syringe* each morning and evening, water the paths when the sun is out. Those plants which make quick growth will require much water. The temperature of the stove may range as high as seventy degrees by day, and sixty degrees at night. *Winter-blooming* stove plants, cut in and place in a cooler situation. Attend to neatness everywhere, removing decayed foliage and flowers.

Cultural Department.—*Achimenes* and *Gesnerias*, pot for succession; these plants require a more liberal supply of water as they grow, and attention to repotting. *Amaryllis*, repot and place in heat. *Aphelandras*, repot and tie up. *Clerodendrons*, cut down early in the month and start them, shaking off all the old soil. *Echites* and *Ipomœas* will require attention to trimming and training. *Gloriosa superba*, start in a brisk bottom heat. *Gloxinias*, towards the end of the month prepare a succession. *Ixoras*, repot, stop and tie out. *Schubertias*, place in bottom heat. *Succulents*, attend to watering, but be careful they do not have too much.

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QUESTIONS, ANSWERS, AND REMARKS.

Passiflora Kermisina.—I should feel very much obliged to the Editor of the *Floricultural Cabinet*, or any of his correspondents, if they would inform me if this plant will succeed well in a conservatory.—*J. P. Knox.* [About the early part of May, turn out a strong plant into the border of the conservatory, which should be composed of good loam and peat, in nearly equal proportions, with a small quantity of sand. In this the plant will grow vigorously, and flower profusely during the summer and autumn months. In such a situation, however, it seldom or never survives the winter, nor will it in any common greenhouse or conservatory; but if you are fortunate enough to possess a stove, you may very easily have a strong plant to turn out into the conservatory every spring, which will well repay all trouble. Cuttings of the ripened wood, taken off any time during the summer and autumn, three or four joints long, planted in sand or sandy mould, and plunged in heat in the propagating house, will root with the greatest freedom, after which they should be potted off, in soil composed of nearly equal parts peat and loam, made quite sandy, and kept in the stove during winter, and planted out in the conservatory early in spring; or the old plant may be taken up late in the autumn, after it loses its leaves, the shoots cut back, and potted into as small a pot as possible, and kept in a cool part of the stove, and turned out early in spring.—Ed.]

The Pomegranate.—A Subscriber complains he cannot bloom the Pomegranate against a west-aspected wall. [It blooms and fruits well treated, as follows. A dry substratum; if not so naturally, it must be formed by pieces of stone, brickbats, etc. A light but rich loam. In pruning, leave the new shoots (twiggy ones) as numerous as is requisite, as it is from them the bloom is produced. It must be trained against a south-aspected wall, and if sheltered from wind on east or west all the better.—Ed.]

Delphiniums.—Wishing to make a bed of Delphiniums, I shall feel obliged by a list describing some of the most distinct and approved varieties; should you be able to afford space for this in an early number of the *Cabinet* I shall feel much indebted.—*W. Alfeat.* [In answer to our respected correspondent we recommend the following:—Azureum flore pleno, very fine, light azure-blue; Barlowi, intense violet-blue; Belladonna, large, pale lavender-blue; Bicolor, deep blue, white centre; Cardinale, light scarlet, very distinct; Conspicuum, a very large flower, blue, with a white eye; Elatum flore pleno, rich blue; Grandiflorum maximum, intense blue; Hendersoni, large flower, rich ultramarine blue, small white eye, very dwarf; Magnificum, large and fine, rich blue, with a small white eye; Mesoleucum, blue, with pure white centre; Mooreanum, deep blue, small, and very double; Pulchrum, fine lavender-blue; Sinense, light pale blue; Sinense alba, white; Triste, brown-black, a very distinct large flower; Wheeleri, a tall grower, bearing close spikes of clear blue.—Ed.]

Roses for Pot Culture.—A descriptive list of a few of the best Roses for pot culture, fit for exhibition, will be very acceptable to an old reader of the *Cabinet*, who wishes also to know whether it is preferable to have the plants on their own roots. A reply in an early number is requested.—*An Admirer of the Rose.* [We would recommend the purchase of nice young plants on their own roots. Suckers are thus avoided, or when a strong shoot pushes from the roots, it may become useful in filling up any gap occasioned by the removal of older wood, past its best. The following are a choice selection, and are all good pot Roses. The Tea kinds are amongst the easiest to grow, and are also highly perfumed; but with due attention all the following will amply repay the little extra attention they may require.—Ed.]

HYBRID PERPETUAL.

Aubernon, bright rose, changes to carmine, large and full.
Baronne Prevost, superb, large, light pink.
Docteur Marx, brilliant carmine, a vivid-coloured variety.
Duchess of Sutherland, pale rose, a splendid, large, and full flower.
Etendard de Marengo, glowing crimson, fine.
Géant des Batailles, vivid crimson, shaded with purple, very double, extra fine.
Jacques Lafitte, cherry-crimson, pale edges; large.
Jules Margottin, a superb flower, brilliant cherry colour, fine, and very full.
La Reine, rosy pink, tinged with lilac, very large and full.
Madame Laffay, rosy crimson, large, and very double.
Mrs. Rivers, clear blush, fine form.
Prince Leon, brilliant crimson, large and full.
Queen Victoria, white, shaded with peach, fine.
William Jesse, crimson, tinged with lilac, very large; superb.

BOURBON.

Acidale, blush white, a fine flower.
Madame Angelina, rich cream colour, fawn centre; distinct and beautiful.
Paul Joseph, deep velvety crimson, large and full.
Prince Albert, bright scarlet-crimson, large, and very double; extra.
Souchet, deep crimson-purple, a fine full flower.
Souvenir de la Malmaison, blush white, extra large and full.

NOISETTE.

Aimée Vibert, pure white.
Caroline Marniesse, creamy white, blooms in large clusters.
Cloth of Gold, yellow, sulphur edges, large and full.
Du Luxembourg, rosy lilac, centre red, large, very double, and fine.
Euphrosyne, light rose and yellow, very fragrant, large and full; an abundant bloomer.
Le Pactole, fine clear yellow, large full flowers.
Lamarque, sulphur, very beautiful delicate and fine rose.
Miss Glegg, fine pure white, full.
Solfaterre, sulphur-yellow, large and double.

CHINA.

Cramoisie supérieur, rich velvety crimson, beautiful and full.
Eugène Beauharnais, amaranth, large, very fine.
Marjolin du Luxembourg, dark crimson, superb.
Mrs. Bosanquet, delicate flesh, blooms in clusters, large, and very double.

TEA.

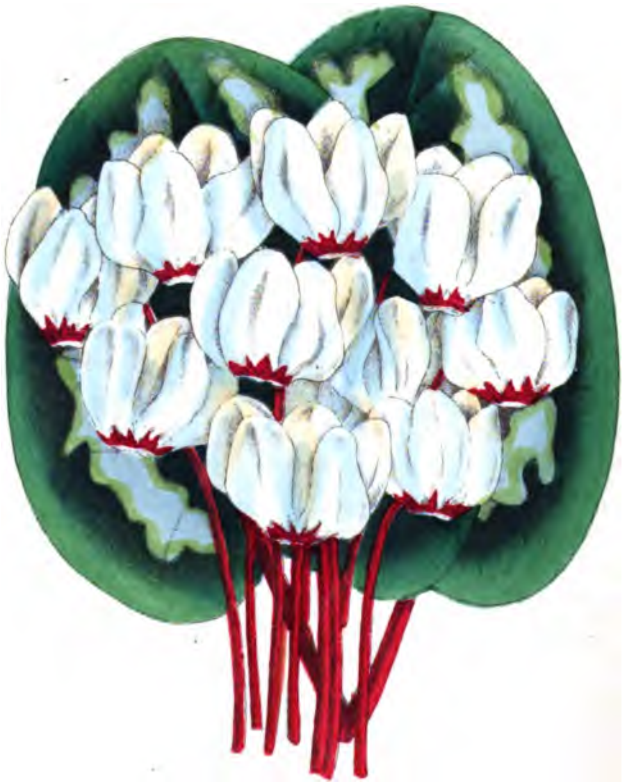
Adam, rosy blush, very fragrant, large and full.
Bougère, deep rosy bronze, superb.
Bride of Abydos, cream colour, tinged with rose; a very delicate and beautiful flower.
Comte de Paris, fleshy rose, very large and full; extra fine.
Devoniensis, straw-yellow, very large; a superb rose.
Eliza Sauvage, yellow, with an orange centre; beautiful.
Gloire de Dijon, salmon-buff, shaded, very large and full; one of the best of the Tea Roses.
Madame de St. Joseph, salmon-pink, large and double.
Moiret, light yellow, shaded with fawn and rose; superb.
Niphetos, delicate straw colour, sometimes snowy white, large and full.
Safrano, bright apricot when in bud, changing to buff; beautiful.
Souvenir d'un Ami, rose and salmon, shaded, large and full.
Triomphe de Luxembourg, rosy copper colour, very large and fine.
Vicomtesse Decazes, clear yellow, with a deeper centre tinged with copper colour, large, and very double.

Herbarium.—I am about to form a herbarium; as I have seen so many plans recommended for drying and sticking specimens to the papers, will you or any correspondent be kind enough to say what plan is the best to pursue.—*Omicron.* [In drying the specimens, care must be taken not to press them so much as to crush them; succulents, and such specimens as drop their leaves, as Heaths, should be dipped in hot water before they are pressed. Each specimen should be placed between a sheet of blotting-paper, and between each filled sheet several empty ones should be placed; for the first day or two the pressure should be only just sufficient to prevent the leaves and flowers from shrivelling. When the papers are damp, the plants should be placed in dry ones, increasing the pressure after every shift till the specimens are perfectly dry, when they may be secured in the herbarium by small strips of paper, gummed on one side, and placed at sufficient intervals to secure them firmly.—ED.]

HORTICULTURAL SOCIETY'S MEETING, FEB. 3.—The Rev. L. Vernon Harcourt in the chair. Twenty-five new Fellows were elected, and among other subjects of exhibition worthy of notice were the following:—A fine specimen of *Erica mutabilis*, from Mr. Roser, gardener to J. Bradbury, Esq.; a seedling Heliotrope, by Mr. Dunsford, of Chingford; a pretty variegated Verbena, raised and exhibited by Mr. Turner, of East Barnet; some fine forced Hyacinths, from Mr. Cutbush, of Highgate, and a specimen of the double-blossomed *Camellia reticulata*, being the first introduced into this country. It closely resembles *C. reticulata* in the leaf; the flower is vivid crimson, and very double. A flower which measured near six inches across was produced in January, although the specimen exhibited was considerably under these dimensions, which is accounted for by the fact of its having been produced on a small side branch, whilst the former was from a strong plant. Mr. Standish, of Bagshot (the exhibitor), affirms that he has no doubt of strongly grown plants bearing flowers of an enormous size. It was sent to that gentleman some years ago, by Mr. Fortune, who purchased it of a Chinaman, under the representation of its being a double *reticulata*, which, almost contrary to expectation, has proved to be correct, and we may consider it as an excellent acquisition. The gardens of the Society contributed specimens of several Epacrises, *Eugenia Ugni*, and some Conifers, including the true *Cupressus Macnabbiana*, a valuable hardy plant, a native of California. Mr. Williams, gardener to J. Fairie, Esq., of Liverpool, sent a collection of cut flowers, comprising some handsome Orchids, Camellias, Early Tulips, *Diosma ovata*, etc. A young stem of the *Aralia papyrifera*, or Rice-paper Plant, from the island of Formosa, was shown by Mr. Fortune (who was present), and who states that there is no doubt that island affords the most considerable supply of this article, which is in great demand at Canton and in the province of Fo-kien. The low price at which it sells proves its abundance, as one hundred sheets may be bought for three halfpence. It is excellently adapted for the manufacture of artificial flowers, and in the city of Foo-Chou-Foo the ladies wear very beautiful ones in their hair, made of this material alone. The paper is formed by cutting the thick pith of the plant in long spiral strips, which are afterwards pressed flat. Dr. Lindley drew attention to drawings of three new Orchids, *Maxillaria venusta*, *Odontoglossum phalænopsis*, and *Selenipedium Schlimii*, a new Lady's Slipper, introduced recently into Belgium, and which for beauty and singularity are scarcely surpassed by any other plants of the tribe. Boucherie's improvements in timber were also explained.

DRYING, PRESERVING, AND ARRANGING SPECIMENS.—First, be careful to gather the specimens when dry; they may be brought home in the hand as a nosegay, or, what is much better, in a tin sandwich box. Then taking up each specimen singly, lay it smoothly between the leaves of a large book; or several sheets of common paper, then another specimen a few leaves distant, and so on till the box is full; this done, tie it up tightly with a string, and put a weight upon it (such as a flat iron or two). Thus the plants are to remain for a day, and then changed into a fresh book, to dry them still more, and so on for four or five days, when they will all be found dry, of good colour, and fit to put away. Some few plants require a different treatment. In thick-stalked and woody plants, the under side of the stem is first to be cut away. Berries must be dried by being hung up in the sun or air. The Stonecrop and Houseleek, as well as the Heaths, must be dipped three or four minutes in boiling water, before laying out; if this be not done the juicy plants will grow even for a long time after they are placed in the papers, and the leaves of the Heaths will soon fall off; also, water plants are better for being laid between folds of calico for the first day. In drying plants blotting-paper has been considered the best, but Mr. Bentall's paper manufactured for this purpose is found to be in all respects more suitable Dried plants are very subject to be devoured by insects, if kept in a damp place. The best way to manage herbariums thus infested is to spread out the various plants to the sun and air for a day or two, though if well dried, and kept so afterwards, the plants will not be injured. Each plant should be fastened to a separate piece of paper, in the following manner:—Wash over a sheet of paper with thick gum-water, the thicker the better, and let it dry perfectly; then cut this into various-sized strips, which will form bands to fasten on the plants with. Thus furnished with materials, place the dried specimen upon the paper intended for it; take up a proper-sized strip of gummed paper, and having wetted the gummed side of it with the end of the tongue, place it across some part of the specimen, then another in another place, and so on till the whole is properly fixed. Some persons glue their specimens down, others sow them on, but the above method is far superior to either, and much less troublesome.—*K.*

GARDENS OF OLD ROME.—The old Roman householders differed widely from the modern inhabitants of great cities; for while the latter are imprisoned amid interminable piles of houses, that seem always to be enveloped in thick clouds of dust, and never enlivened by the sight of anything green, the former, not excepting the most needy of them, used to aim at having a plot of green continually before their eyes. In the interior of almost every house there used to be an open space, surrounded on all the four sides by covered walks. In the middle of this space was a reservoir, which was arranged to catch the rain-water that poured down from the roofs; in the houses of the wealthy, a fountain frequently played in the midst of this reservoir, supplied by the public water-pipes. In large houses, the reservoir was of great extent, and alive with fishes; around this stretched a grassy plot, called the *viridarium*, which usually contained a laurel-tree. If there were sufficient room, myrtle and plane trees used to be planted along with the laurel. The plane-tree was considered to be the handsomest of all ornamental trees, and although a native of a warmer climate, with proper care and in sheltered places, it used to flourish in Rome. In fact, the entire inner court of the Roman house, which went under the name of the *cavædium*, was occupied, so far as the locality would allow, with vegetation; even the *atrium* was not exempt from it. The atrium, as is well known, was the great court next to the entrance of the house, which was originally occupied by the family, but which was subsequently embellished by gorgeous rows of pillars, and devoted to the reception of visitors. By reason of its necessarily large dimensions, it was not furnished with a roof. In the middle of this spacious court a fountain was continually playing, cooling the atmosphere by its incessant jets of fresh water; this, too, was surrounded by grassy plots; vases of flowers were arranged upon the balustrade between the pillars; so that one might feel tempted to consider one's self in the entrance hall of some country-seat, did not the host of visitors too frequently recall the reality of the city turmoil. A more extensive space the citizens appropriated to green growth, which more nearly resembled a pleasure garden, when they planted the *peristylium*, which joins the cavædium, with grass and trees. This room was devoted to the ordinary life of the family, on which account it was fitted up as handsomely and conveniently as possible. In the great palaces of Rome the peristylia were of vast extent, and, without any impropriety, one might speak of their being laid out with gardens. In the place of shrubs or single trees, such as we met with in the cavædium, there was a gloomy grove of myrtles; rows of plane and pine trees, and of the favourite lotus-tree, supplied refreshment by their shade; there was a perfect forest of trees, which creaked mournfully in the roar of the storm; here, year after year, the singing birds found a hospitable retreat, and multiplied in undisturbed repose. Parrots, swinging in costly cages, entertained the passers-by with their chattering. Peacocks, whose proudly distended plumage attracted all eyes, together with other domestic birds, were carefully kept within enclosed spaces. A larger reservoir supplied the water that was necessary for the fountains, and also for sprinkling the paths when the dust made them disagreeable. In some of the palaces, these reservoirs were so large that they were used as fish-ponds; gold fish swam about in them, ravishing the eye by their colours; or lampreys and necklaced barbs, at the sound of the flute, or being called by their names, used to come and take their food from the hand of their owner.—*W. Chambers.*



CYCLAMEN ATKINSII

The Floricultural Cabinet.

APRIL, 1857.

ILLUSTRATION.

CYCLAMEN ATKINSII.

THIS pretty hybrid was raised by Mr. Atkins, of Painswick, an amateur who has for some years devoted considerable attention to the beautiful family of which the plant we figure is a handsome variety, and who is now in possession of an extensive collection, comprising several hybrids. Mr. Atkins states, "after many ineffectual attempts to produce a good cross between *Cyclamen Coum* or *C. vernum*, and *C. Persicum*, combining the neat habit of the two former with the colour and large petals of the latter, having at the same time the foliage dark, relieved with a lighter band, or marbled, I at length succeeded in raising the present hybrid from seeds produced by a variety of *C. Coum*, impregnated with *C. Persicum*, and this, I have every reason to believe, I shall be able to perpetuate, and thus introduce a new and interesting feature into this beautiful family of plants." *Cyclamen Atkinsii* is a very profuse flowerer, producing its blossoms in as close abundance as shown in our plate. It has proved itself quite hardy, having borne severe frost without injury. The blossoms are white, with a deep crimson centre, and the leaves beautifully marbled. In habit it resembles *C. Coum*, and, like that variety, is of easy culture. The bulbs should be grown in pans or shallow pots, in soil containing a large proportion of leaf-mould, with which the crowns should be covered about an inch in depth; in this respect, *C. Atkinsii* differs from others of the genus, which generally succeed best when but slightly in the soil. It requires to be shifted but once in three years, blossoming more freely under this treatment; a top-dressing is sufficient for the intermediate seasons. The cold-pit is best for its culture, from which it may be brought into the house for the flowering season.

The following descriptive list contains such species as are at present in general cultivation:—

Cyclamen æstivum.—Flowers small, rosy purple, May to July. Leaves roundish heart-shaped, lobes at the base not overlapping, margins entire or remotely toothed. Introduced from Italy in 1596. Hardy. Synonym *C. Clusii;* by some confounded with *C. Europæum.*

C. Coum.—Flowers reddish purple, small, and destitute of scent, January to March. Leaves flat and round, heart-shaped at the base, entire, dark green above, and reddish purple beneath. From the south of Europe in 1596. Hardy. Synonym *C. orbiculare.*

C. Europæum.—Flowers bright reddish purple, small, and sweet scented, July to September. Leaves small, roundly heart-shaped, slightly toothed, and strongly marked on the upper side with a pale irregular band; basal lobes overlapping. From the south of Europe in 1596. Hardy. Synonyms *C. anemonoides, autumnale, fragrans, Hungaricum, officinale,* and *retroflexum.*

C. Ficariifolium.—Flowers large, white or pale flesh coloured, purplish about the centre, March to May. Leaves deeply cordate, the margin cut into five segments. Native of Europe, said also to be found wild in England. Hardy. Synonym *C. Hederifolium.*

C. Hederifolium.—Flowers large, white, changing to deep flesh colour, purplish about the mouth, very sweet scented, March to May. Leaves broad, toothed, with from seven to nine segments, variegated with dark green and white above, purple beneath. Hardy. From the south of Europe. Synonym *C. Africanum* and *latifolium.*

C. Ibericum.—Flowers small, rosy purple, dark centre, February and March. Leaves roundish heart-shaped, small, marbled with white on the upper surface. From Iberia in 1831. Hardy.

C. littorale.—Flowers small, rose coloured, sweet scented, June and July. Leaves roundish heart-shaped, somewhat acute, entire, blotched with white on the upper surface, purple beneath. North of Italy, 1843. Hardy.

C. macrophyllum.—Flowers large, flesh colour, deep carmine centre, June and July. Leaves large, cordate, acuminate, the upper surface marbled with pale green. Algiers, 1850. Tender.

C. Neapolitanum.—Flowers large, pale rose, August and September. Leaves irregular, mostly five angular, with an irregular band of white and purple on the under surface. From Italy in 1824. Hardy. Synonyms *C. autumnale, purpurascens.*

C. Persicum.—Flowers large, of diverse colours, as white, pale purple, etc., February to May. Leaves large, cordate, marbled with white on the upper surface, purple beneath. From Cyprus, in 1731. Tender.

C. repandum.—Flowers light rose colour, March to May. Leaves cordate, thin. From Greece, in 1816. Tender.

C. vernum.—Flowers bright red, larger than *C. Coum,* and of the same form, November to January. Leaves large, round, entire, with the lobes overlapping each other, the upper surface marked with an irregular white band. From the south of Europe, in 1814. Hardy. Synonym *C. vernale.*

Besides the above there are several species described by botanists, which are not yet in cultivation, as well as many varieties raised by hybridizing, some of which possess considerable merit; we are only surprised that more general attention has not been devoted by the florist to the multiplication of other and equally interesting kinds. Cyclamens present a field in which much remains to be done.

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ON THE CULTURE OF THE ORANGE TREE.

BY CITRUS.

I AM frequently surprised at the inconsistent modes of treatment recommended by various gardening authorities, and practised by gardeners cultivating the orange tribe in this country, and I do not therefore wonder at the general bad success which attends their treatment, nor at the ill-formed and worse-grown specimens we so frequently meet with. I take the present opportunity, through the medium of the *Cabinet*, of describing the treatment which I have myself found most successful, and which I can consequently recommend to your readers.

Having procured seed of good kinds, it should be sown in light rich mould, in twenty-four-sized pots, about the beginning of March, covering it about half an inch deep, and placing a layer of moss over the surface, to retain a slight moisture in the mould. The pots should then be plunged in a hotbed previously prepared for them, where the heat can be maintained to about seventy or seventy-five degrees; below this it should not be allowed to sink. In a few days the seed will vegetate and the young plants will make their way through the moss, after which, if weather permit, a little air should be given. In the course of five or six weeks, under proper management, they will be near six inches high, and may then be potted off into small pots, which should be well drained, and again plunged in the hotbed, the heat of which must be steady, and not too great to injure the roots; the object is to obtain a clean growth. By the commencement of July the greater portion of them will be ready for grafting. Choose a shady situation for another hotbed, which should be previously prepared, and then graft the plants; the most certain plan in my opinion is that called cleft-grafting, as the scion heals over the wound more readily than under any other method. The top of the scion should be taken off before inserting it in the stock, which I believe causes them to unite sooner, by inducing a greater flow of sap. At this time they require to be well shaded from the sun by mats, and a proper heat maintained, otherwise failure is too frequently the result. As soon as the scions have properly "taken," air may be given, though sparingly at first, caution in this respect being very necessary. A frame is perhaps the best place to keep them in through the winter, as they are sure to keep better there than anywhere else, if care be taken not to over-water them, otherwise the roots are liable to rot.

In the ensuing spring, about the commencement of April, a little heat may again be given to set them growing, and if plenty of air be admitted they will be prevented from becoming weak. Should any shoot appear to take too much the lead of the others, pinch it in, and by that means fine heads may be formed.

As to the compost most suitable for this tribe, I find nothing better than a mixture composed of two parts well-rotted turves from a good loamy pasture, and cut thick; these, having been left to decompose, should be mixed with one part of dung, or old hotbed manure, and the whole broken through a coarse sieve. Many writers have directed the mixture of other ingredients, some indeed highly stimulating in their nature, as well as unpleasant to use or difficult to procure—all of which I consider quite unnecessary; the main thing is to have good loam, slightly enriched by manure. Should the loam be of a rather stiff nature, a small portion of sand added to it will serve to render it more open and porous; for orange trees and all of their tribe are very averse to soils which are retentive of moisture. For this reason, we always find it beneficial to support the pots or boxes in which they are planted, at a few inches from the floor, to permit moisture escaping. Well-drained soil will generally show, by the healthy appearance of the trees, the good effects of such a shift, compared with those which have been perhaps for years allowed to stand in ill-drained pots or boxes.

In shifting orange trees, should the roots have become matted, and the ball hard, it is well to soak it in water for a short time, and if too clogged, it may be desirable even to wash it out from the roots, but in that case the plant should be reduced, or it will receive a check and flag; yet the roots should be as little disturbed as possible at all times, and unless we are undertaking the management of such trees as have been neglected, the above course will rarely be necessary. It has been recommended by some practical gardeners to shift orange trees but once in two years; but, if they are of manageable dimensions, once a year is better. Should the roots appear rotten or unhealthy, prune them in a little, and see that the fault does not rest with deficiency of drainage. The changes from pots to tubs or boxes, from small to larger, should go on so long as it is desired the trees should grow larger, the compost remaining the same, and watering being well attended to, with a little liquid manure every third or fourth time during the growing season, though I by no means agree with its application in an undiluted form, as but little stimulus is necessary. During the summer-time, from March to September, the leaves and head of the plants are greatly benefited by a good syringing once a day, though when in flower a very fine rose should be used, so as almost to make the application as gentle as dew.

Flowers and fruit are mostly produced on the young wood of the current season; in pruning, therefore, see that the branches are not allowed to become too thickly interspersed, which tends to exclude air and light; check such branches as grow too vigorously, and remove all old and bare wood, to make way for the young. In order to keep the head open, it is advisable to remove the weakest branches altogether, which is best done before the spring growth, in February or March, as few fruit-bearing trees require greater care in this particular.

Of orange trees there are several varieties, and in making a selection the object in view must determine the choice: if good, well-flavoured fruits are desired, I think the blood orange, or Maltese, is far the best kind, being very sweet, and of very thin rind, as well as a profuse bearer; for beauty of appearance, some of the bitter-fruited sorts make a finer show, and many of these have very ornamental foliage, as the gold and silver striped, willow leaved, and myrtle leaved. Along with these might be grown the citron, the lime, and the lemon, the same treatment being suitable to the whole of the tribe.

ROSES AND ROSE-GROWERS.

BY MR. GEORGE GLENNY.

NO branch of floriculture has excited greater dissatisfaction with the public than the Rose trade. An indifferent person might buy a hundred (so called) varieties, and when they came into bloom find so many of the same colour, and almost the same character, that he could not consider them distinct. An exhibitor would be afraid of many being taken for the same variety, and the object of all selections, I will not say collections, is then wholly frustrated. In a sort of controversy which has been carried on in some of the floricultural publications, the different opinions of various dealers came out in strong colours. It is the practice of respectable growers to buy everything, to prove all by growing them a season, to throw away all those which are too much like what we already have, and put the really good novelties into their catalogues; hence Messrs. Lane, Bircham, Wilkinson, and others, have always been taxed with the amount they have to pay for rubbish, which they have thrown aside, and their customers have escaped being subjected to the tax; other growers have catalogued varieties of no value, and their customers have suffered.

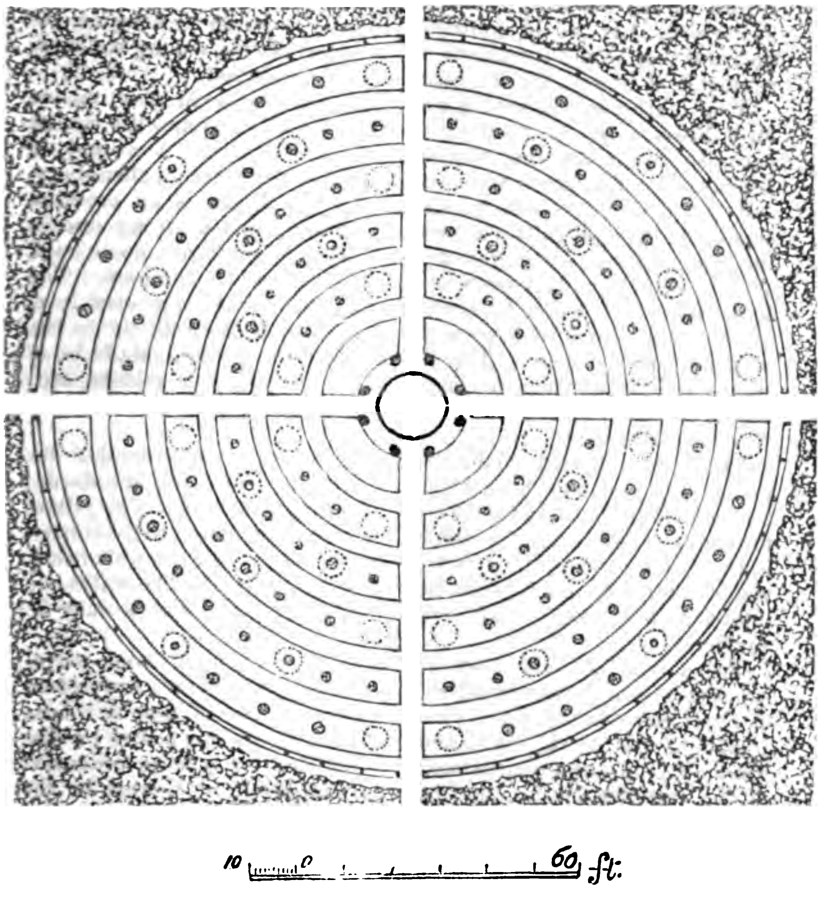
This is precisely what discourages many from buying new Roses; to obviate it, I have annually given a select list of the best in "Glenny's Garden Almanack." I do not profess to give all the good ones, far from it, I have only given a description of thirty-six, although I might very well have extended it to three times the number; but my object has always been to start beginners with what will not fail to gratify them—a list which has not a bad or an indifferent Rose in it; so that if a man wants only half a dozen, he may not be able to choose a bad one, whilst the description of the colours and habits help him to a certainty with what he requires, and this is how it should always be in catalogues. Supposing, then, a person desires to commence Rose-growing, and wishes his trees to be conspicuous in his garden, he ought to let the nurseryman understand that he requires those which are always in bloom, or at least those which have a long season of uninterrupted flowering. This being his chief point, he should next order them to be very distinct; if any are to be of the same colour, and of course some will, they must be different in size and form.

If the nurseryman complies with these two points the grower must be content, for they are the essentials in Rose-trees for ornamental gardens. But if the grower shall intend to exhibit at the summer shows, he must grow some of quite another class; many Roses, that are splendid in form, texture, and colour, are only in bloom a month, and those who exhibit without them will do so at great disadvantage. These should be grown in a quarter by themselves; they should not occupy conspicuous places, because eleven months out of the twelve they are ugly, and should never form single objects; let them be where you can take friends to see them while in flower, but not where people come upon them in the ordinary beds or borders: the garden should be complete without them, or they would form a blank the greater part of the blooming season. Let us suppose, then, that some of our readers order a lot of Roses from one of the principal growers, the buyer must not expect trees with large heads, but stocks budded last year, and with perhaps a single strong branch some length. His very first act must be to cut it down to two or three eyes; he may then plant it carefully in good strong ground, and if his natural soil be not so, he must dig the whole, throw out the stuff, and put good loam and dung in its place, forking it into the bottom and surrounding soil.

Plant the tree and support it in its place with a stake, to prevent its stirring with the wind or from other violence; he must plant it so that the roots are but just covered, the collar or upper part of the root being only just beneath the surface; two or three strong branches will start, and grow and bloom, unless he shall, when they have pushed about three joints, pinch out the growing point, which would excite three joints to each, and so form a good head the same year. If the tree has already several branches, let them, if strong, be cut back to three eyes, or two, if the second eye points outward and the third inwards; and when the buds come out rub off all that come inwards, it is far better than having to cut them off after they have grown, because they only weaken the more important shoots. There are exceptions to this mode of pruning, because some of the short-jointed constant growers only want the weak spindly shoots and all those that grow inwards cut clean away, and if the buds have not been rubbed off, there is sure to be some of these, but the principal branches must not be shortened much. As a good many are about beginning to grow Roses as leading ornaments, and others for purposes of exhibition, these few hints may be useful.

DESIGN FOR A ROSARIUM.

BY T. RUTGER, ESQ.



YOUR correspondent G. G. has written well on the situation proper for a Rose-garden (see p. 29 in the present vol.), as well as on the preparation necessary for a successful cultivation of the Rose. I would only add, that for a Rose-garden, strictly confined to Rose culture, I should recommend it to be placed in a secluded part of the shrubbery, so that it would not be necessary to go through it at any other time but when the Roses are in full bloom; however, in order to make it attractive at other seasons of the year, some persons might perhaps be inclined to place a Dahlia between each of the Roses, so as to succeed them when out of bloom, and thus sustain an interest in visiting the garden during the autumn; and then, with regard to the standard Roses, if many of them were of the *hybrid Perpetuals*, they would contribute greatly towards prolonging the pleasure they would contribute to the lovers of this, among the most estimable of flowers for decorating the flower-garden.

Your correspondent having written in favour of a circular outline for a Rose-garden, or rosarium, has led me to construct the design herewith given for the *Cabinet*, should you think it worthy of acceptance. The site is supposed to be enclosed within a shrubbery, and the design laid out in zones. In the centre is an erection supported by eight pillars around the exterior, and a strong one in the centre, with a seat round it; it is supposed to have a dome roof, and the exterior pillars are meant to be trellised for climbers. The structure is intended to be elevated somewhat above the general level of the garden, and to have a grass slope from the walk up to the pillars of the structure. The fence round the garden should be of iron, and wired sufficiently close and high to keep out rabbits, etc., and at the same time to be adapted for climbing Roses, such as the Ayrshire, Boursault, etc.

The circles dotted round their circumference are intended for pillars of Roses, and those with a dot in the centre for standards; the remaining spaces in the beds are of course for dwarfs. The pillars for Roses being in a line on each side of the walks leading to the centre, if they were connected by an iron-trellised arch over the walks they would contribute much to the beauty of the garden. The walks are intended to be edged with box, or such other material as may be preferred.

For a rosarium laid down on grass, should any of your correspondents be in possession of, or have access to, "Loudon's Arboretum et Fruticetum Britannicum," they may see a design of mine in vol. iv. p. 256, of that work, where the Standard Roses are placed on the grass; it is of large dimensions, and intended for a large collection of the varieties of this, one of the most lovely of flowers in the nomenclature of Flora.

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BOTANY OF THE MONTH.

BY MR. SHEPPARD, BURY.

CHANGE is the order of nature—during the dearth and darkness of winter, we walked forth as into the unbounded burial-ground of the vegetable kingdom. At that time we discovered few traces of that wondrous profusion of organic vitality which now presents itself to our gaze; the spirit of renewal is sent forth, the earth has advanced in her annual round, and arrived at that period when, as heretofore—

> "Her poles are slanted towards the sun;"

when the great eye of day obtains gradual but never-failing supremacy over winter, darkness, and cold, dispersing light and heat, and calling up life and joy. The fields and woods, over which sadness had thrown her mantle, rejoice, and swell and freshen, and bud and blossom into life, verifying the record of holy writ, and speaking with many-trumpet tongues to our understandings that "while the earth remaineth, seed-time and harvest, and cold and heat, and summer and winter, and day and night, shall not cease." This is a resurrection from the dead—type of that of immortality—a resurrection in which the earth, air, and water participate, calling forth in each unnumbered tribes to enjoy the bounties of the Creator from this, his wide-spread table. "Thou sendest forth thy spirit, they are created; and Thou renewest the face of the earth."

The process of vegetation is general and rapid this month. The Sloe, or Blackthorn, *Prunus spinosa*, first shows its elegant blossoms; a host of others follow, among which it may suffice to name the Ash, *Fraxinus excelsior;* the Hawthorn, *Cratægus oxycantha;* and the Sycamore, *Acer pseudo-platanus*. The Larch, *Pinus larix*, exhibits its red tufts, which speedily expand into young cones; the Horse Chestnut, *Hippocastanum*, displays its leafy honours intermingled with its pyramids of beautiful white and red flowers, the glory of forest trees; while many fruit trees are blossoming in the orchards and on the walls of our gardens. The Beech and Larch attain their full leaf, having cast off their old covering, and assumed a new and more cheering vestment. It is a remarkable fact that the leaves of deciduous trees are generally of a lighter green than those of evergreens, even when fully matured; were it not for these, our woods and shrubberies would be comparatively destitute of those pleasing shades of green and those rich autumnal tints wherewith they please the eye of the observer of nature and admirer of the picturesque.

Many field flowers are now in blossom; one which has always excited my admiration is the delicate little Wood Sorrel, *Oxalis acetocella*. This pretty little flower is almost too well known to require a description; its pendent Snowdrop-like flower of pearly white is tenderly streaked with pink veins; its trifoliate leaves are of so fresh and vivid a green that the herbage around it looks dull by comparison, and altogether it may be considered one of the most unassuming yet attractive gems which our country contributes to adorn the fair chaplet of Flora. The Wood Anemone, or "flower of the west wind," *Anemone nemorosa*, abounds in some districts of England, and may now be met with in full flower; its delicate white or blush-coloured blossoms make it a general favourite; growing in woods and shady lanes, its flowers nod to the passing wind, giving rise to the name by which it is commonly known, "Wind-flower." One of our poets, in the following lines, has commemorated the wild Anemone as a nymph of the woods:—

"Nymph of the woods and forest glade!
In thy own fair vestal robes arrayed,
In the calm of the silent sylvan bowers,
'Tis sweet to gaze on thy drooping flowers;
Chaste and pure as the driven snow,
Yet faintly tinged with a purple glow.
Like mountain crests,
On some Alpine height,
When the snow-drift rests
In the evening light!"

The graceful wild Hyacinth, *Hyacinthus non-scriptus*, with its light elastic stalks and pure blue bells, is now abundant, not only in our fields and on our commons, but throughout the continent of Europe; it is one of the most generally distributed of our indigenous plants. This is a great favourite with children, who, under the name of "Blue-bottles," gather the pretty flowers, for their rustic nosegay, of this humble representative of the beautiful Hyacinths which ornament our windows, greenhouse, and parterre. Some of the curious family of Orchises are in flower, especially the Male Orchis, *O. mascula*, which is one of the earliest of the genus; the flowers are purple, borne on a spike about a foot high, and often diffusing a fragrance around; its leaves are dark green, spotted with dull purple, and may frequently be found springing up in our woods and pastures, where the soil is damp and boggy. Primroses, *Primula veris*, the Cowslip, and other plants of this genus, are remarkable as early spring-flowering plants, which may be seen collected in thousands on the sunny hill-side and along the hedgerows of "Merrie England." The Cowslip has ever been a favourite with the poet. Montgomery says—

"Now in my walk, with sweet surprise,
I see the first spring Cowslip rise,
The plant whose pensile flowers
Bend to the earth their beauteous eyes,
In sunshine as in showers."

Besides the Primrose and Cowslip, we may occasionally discover the Oxlip, which is between the two former, as well as the Mealy Primrose and the Scotch Primrose, both with red flowers; the latter, however, are confined to the mountains of the more northern counties and to Scotland. The Ranunculus tribe is represented in our flora of April by the Butter-cup, *Ranunculus bulbosus*, and *R. auricomis*, the Wood Crowfoot. Some of these indigenous field-flowers, though inferior to many foreign tenants of the garden in splendour as well as fragrance, have a grace and delicacy peculiarly their own; the love of them leads to much that is salutary and delightful. Who has not heard of the emotion produced in the breast of one of our bards, who found a daisy springing up—a real *English* daisy—in his garden in a far-off land, where it had doubtless originated from a clod of earth conveyed thither, adhering to the roots of some more favoured plant? Some of the most curious of the Grass tribe are now in perfection, and in their favourite localities we may find the Cotton Grasses, *Eriophorum angustifolium* and *E. polystachion;* the Blue Moor Grass, *Sesteria cærulea;* and the early Sedge Grass, *Carex præcox*, and *C. pallescens*, the pale variety. In woods, where the soil is of a sandy nature, the singular little Moschatelle, *Adoxa moschatellina*, thrives, almost unnoticed except by the practical botanist. *Cypripedium calceolus*, the elegant Lady's Slipper, is in flower towards the end of this month; although, as appears from a late number of the *Cabinet*, it is becoming scarcer year by year, and is to be found in but few localities. Collectors will do well to allow this and others of our rarer plants to flourish in native grace and beauty, rather than extirpate them altogether by digging them up for their garden, where they seldom do well, or gathering them to fill a blank in their herbarium.

PRACTICAL HINTS ON THE STUDY OF BOTANY, AND THE FORMATION OF HERBARIA.

BY A NORTH-COUNTRY SUBSCRIBER.

(*Continued from page* 60.)

WHEN as many specimens have been gummed down as may be convenient at one time, which of course depends on the leisure of the student, they should be carefully looked over to see that all the strips are secure, and none of them loose. They are then ready to be placed in the herbarium. In arranging the specimens some system is necessary, and perhaps none better than the following. Procure some sheets of stiff brown paper, which fold in half, to contain all the species of each genus, a sheet for each, which will serve as a portfolio to keep them together. At the lower corner, on the left-hand side, paste a slip of paper, on which write the name of the genus, and below it the natural order, thus:—

DATURA.

SOLANEÆ.

By this plan any species or genus may be readily referred to at any time. To receive the genera, some students prefer large portfolios, in which a number may be placed, the names contained in each being written on the back; others have wooden cabinets with shelves, on which they are arranged according to their natural orders. Those who prefer to arrange their herbarium on the Linnæan system, can place the genera in portfolios ticketed for each class and order. A neat thin folio volume of ruled paper should accompany every herbarium, in which every species in it should be alphabetically entered, serving as an index, and labelled appropriately. This will show at a glance all the species in possession of the student, and may frequently serve the purpose, without the trouble of looking them over.

The late Mr. Loudon observes, "Every gardener ought to dry plants and form them into a herbarium. This may be a folio volume of stout thick paper, white, if he can afford it, if not, brown will do; allowing, in binding, the thickness of a leaf for every page, by having a strip bound between each, so that, when filled with specimens, it may shut close and preserve its form. Mr. Toward, who has formed one of the handsomest gardener's herbariums we have anywhere seen, in four thick folio volumes, uses cartridge-paper, pasting to the back of each leaf one of brown blotting-paper, and round the margin of both surfaces of the double leaf so formed strips of cartridge-paper. These strips rather more than compensate for the thickness of the dried specimens; so that when the leaves are bound up, their edges cut, and the books shut close, the external air is excluded, and the appearance as neat as that of any printed volume. The specimens, dried with bags of hot sand, or between loose leaves of paper, or in any old book, may be fixed to the cartridge-side of the sheets of the herbarium book, according to any arrangement which may be preferred." There is no doubt such volumes would be very neat, as well as interesting to look through, but the botanist will generally prefer to have his specimens on loose sheets, in covers or portfolios.

For the purpose of examining the internal forms of plants, and their various organs, the student will require a good simple microscope on a stand, with three or four lenses, varying from an inch to the sixth of an inch in focus; for studying the minute anatomy of the vegetable kingdom, such an instrument, however, is of little service, a good achromatic microscope being an indispensable requisite.

ON GROWING NELUMBIUM SPECIOSUM AND ITS VARIETIES.

BY A NOBLEMAN'S FLOWER-GARDENER.

THIS splendid aquatic is but rarely met with, excepting in some of the larger and more wealthy establishments, although I am persuaded, from my own experience, that most persons who can command a greenhouse might rear and flower it remarkably well; and what object in the whole of Flora's wide domain can compare with this handsome, fragrant aquatic? I grow and flower the Nelumbium as follows:—Having procured some plump seeds, I file a hole through the thick shells at the base of each, being cautious not to damage the interior by the operation, and place them for a day or two in a basin of water, which I set in a warm place. In the course of a fortnight they will sprout and put forth one of their seed-leaves, which always appear before the root-fibres. I then have ready a tub, not less than three feet wide by two feet in depth, the upper portion of which is well painted for about eight inches inside, which serves to check the growth of confervæ (or slime) over the space covered by water. I fill up with mud so high as just to cover the lower rim of the portion painted, in which I plant a healthy-growing young Nelumbium, and cover the mud with an inch of coarse sand, filling up the tub with lukewarm water, and place it in the greenhouse. The proper time for sowing is about the end of April. The water will require renewal about twice a week, which should be done with water that has stood in the house to acquire the same temperature. The plant will grow rapidly if the heat be not allowed to diminish below seventy-five degrees by day, and air admitted at night when the weather is not very cold. When the sun attains much power, a canvas blind should be drawn to screen the direct rays from the tender leaves, which otherwise are likely to be burnt or assume a yellow appearance; another precaution equally necessary is to bend down the young leaves as they appear, on the surface of the sand, by laying a stone on each stalk until they have attained considerable size and length; otherwise, as the plants grow naturally in water several feet deep, they would come to the surface too soon, and wither.

The Nelumbium has two kinds of leaves, one weakly, which rests always on the surface of the water, and the other much stronger, which rises erect above it; the weakly ones are produced first, and when the surface is covered by these, in about a month the stronger leaves appear, rising out of the water to a height of three or four feet. The plants then demand much less attention, as the slimy matter, which is apt, if unchecked, to injure the tender plants, has little effect on them as they become established, neither does it grow so rapidly when the tub has become shaded by leaves. Towards the middle of September the plant may be gradually inured to the open air; and by the end of the month the tub may be removed out of the house, and deposited in a shed, or other convenient place, until the following spring, as frost, unless severe, has no effect on the roots. Next spring the plant should be placed in another tub, newly painted inside, and have one-half fresh earth added to it. Under such treatment blooms will be freely produced, and a succession of healthy plants may easily be kept up. Seeds preserve their vitality for several years.

THE FRESH-WATER AQUARIUM.

BY MR. SHEPPARD, BURY.

> "This scene
> Thou haply mayst delight in, will I fill
> With fairy fish, and moss from mountain tarn,
> And thou shalt feed them from the squirrel's barn;
> Its bottom will I strew with amber shells,
> And pebbles blue from deep enchanted wells."

DOMESTIC aquariums have rapidly become very popular and instructive ornaments to our drawing-rooms and greenhouses, for these tiny representatives of our rivers and lakes are to be met with in the apartments of the humble as well as of the wealthy. I am always led to admire them whenever they come under my notice, regarding them as an indication of the growing taste for floral pursuits and of a love of nature, as well as an index of the spread of botanical knowledge, and the perusal of *Cabinets* and *Magazines* by a large proportion of the people.

Scarcely anything repays us by so large a share of amusement and instruction in so short a time as the small article denominated an *aquarium*, costing the outlay of but a few shillings. In its humblest form it affords the possessor a constant succession of novel and charming objects, and adds to the pleasures of life by perpetually offering to his notice a round of beautiful and strange developments of nature's attractions in what has usually been considered "her lowliest walks." The naturalist and the philosopher may here find a source of perpetual delight, and of that all-prevailing harmony and grace which is ever manifested in the works of God; he finds here many things to excite his admiration of the wisdom of creative power manifested among the singular forms and strange developments contained in this small vessel of water—

> "Some to inform,
> And others to instruct."

For the information of those who may be wishful to establish an aquarium, I may be permitted, as an old and experienced hand, to offer a little advice on its structure. I would, in the first place, recommend the square or rectangular form, as being superior to all others, especially the circular, which I consider the worst, on account of the distorted images which are caused by the refraction arising from its lenticular figure; where the sides of the vessel are formed by parallel plates of glass a clear and distinct view of the contents is obtained, and although the expense of such an aquarium is greater, yet its superiority in this respect over the circular or bell-shaped vessel more than compensates for the extra price. The bottom may be made of slate or wood, the former material being preferable; the sides and ends of plate glass, although thick sheet glass will do very well, this particular should be regulated by the size of the aquarium. The joints at the corners are fitted to wooden or zinc pillars, and secured from leakage by white-lead putty. Such vessels may be constructed for a guinea, measuring twelve by fifteen inches, and of proportionate depth. My own measures twenty-six inches by twenty, and eighteen inches deep, slate bottomed, with birch-wood corners, and cost me £3 15*s*. A sheet of plate glass covers the top, serving to keep out dust, but is elevated half an inch above the top, to allow fresh air to the small animals which sport therein. Some persons provide slate ends, as well as a slate bottom, these being useful, for cementing pieces of stone to them, for the rockwork, being made to represent irregular and overhanging projections of rock; this frequently performed in a very picturesque style, and then lends an additional charm to the whole. In arranging the rockwork, rough stones of almost any kind may be employed; fragments of granite, flint, or sandstone suit equally well. Before using them they should be placed in a stream of running water, or soaked for a fortnight, to extract any impurities. Dark-coloured stones always produce the best effect. The upper tier, or such portion of the rockwork as projects above the surface of the water, is very handsome if made with the clinkers produced at glass-houses. To fasten them together, Roman cement answers the purpose very well, and as it is built up, pieces of coral may be sparingly introduced, and projections or cavities made as taste may dictate. All hard or formal outlines should be avoided, as they seldom look natural, and are calculated to displease the eye of taste.

A stratum of clay, loam, or mud from a pond may cover the bottom to the depth of about three inches, according to the size of the tank, and should have a gentle slope from the back to the front. The main portion of the projecting rockwork may have holes for the reception of loam, in which various ferns and bog plants may be made to flourish above the water.

Leaving the reader time to construct his aquarium, I shall take an early occasion to tell him how to stock it.

THE ALOE TRIBE.

BY MR. JAMES SMITH.

ONE of the largest groups of succulent plants, the Aloes, may almost rank with neglected plants, being seldom met with in cultivation, although among them are to be found many plants of especial beauty, combined with such a singular and interesting appearance of foliage as to stamp them with an unmistakable exotic character. Their cultivation requiring less trouble or time bestowed on it than that of almost any other tribe of plants, makes it more to be regretted that any of this family are so seldom seen in the greenhouses of the amateur. All are natives of Africa and other warm countries, requiring with us shelter from the end of September to June; they may be placed out of doors for the remainder of the year, observing, should immoderate rain prevail, to shelter them, otherwise, being very succulent, they are liable to rot. The majority of these plants are very prolific of suckers or side shoots, which afford a ready means of propagation, if taken off any time during summer from the base of the plants, slightly dried, and then put into moderate-sized pots, filled with light sandy loam well mixed with brick-dust and small pieces of brick broken up; the pots must be well drained, and if the soil be kept just damp and no more, they will root readily in a few weeks. The pots may be set in any corner of the greenhouse, or in a window facing the south. It often occurs that suckers may be taken off ready rooted. Some species, however, are very shy of throwing off side shoots, in which case the leaves may be taken off carefully and treated as suckers, or if the crown of the plant be pinched out, side shoots will be produced, which serve to multiply the kind. All the protection required by this tribe is just sufficient heat in winter to keep out frost. A small greenhouse facing the south-west, or large Ward's case, suits them well. Many varieties are well adapted for window culture, the only harm they are likely to receive in such situations is the too free and injudicious application of water. As a general rule, they ought never to have this element given at all, excepting the lower leaves are perceived to flag, while the soil and drainage should be of such a character as to allow it to pass off quickly; standing water and soddened soil very soon cause the fibres of the roots to decay. The plants need not be shifted oftener than each alternate year, the best season being about the commencement of spring, though it may be done at any time, if proper caution is exercised in the application of water.

I have annexed a short list of a few distinct kinds, all of which are deserving of cultivation, either for the beauty of their flowers or curiosity and exotic appearance. With such a selection the greenhouse may be rendered attractive from early spring throughout the whole of the summer months.

Aloe albocincta, orange-coloured flowers in a branching head, three feet; *A. chinensis*, yellow, three feet; *A. lineata*, scarlet, four feet; *A. prolifera*, orange, two feet; *A. saponaria*, red, three feet; *A. suberecta*, scarlet, three feet; *A. variegata*, pink, three feet.

Apicra imbricata, *A. pentagona*, *A. rigida*, and *A. spiralis* are curious dwarf plants, flowers greenish yellow.

Gasteria maculata, scarlet, two feet; *G. nigricans*, crimson, two feet; *G. pulchra*, scarlet, two feet; *G. subcarinata*, orange-red, two feet; *G. verrucosa*, red, two feet.

Haworthia atrovirens, *H. reticulata*, *H. planifolia*, and *H. translucens* are curious and dwarf, bearing greenish white blossoms, those of the last-named species quite transparent.

Pachidendron Africanum, crimson, six feet; *P. ferox*, yellow, five feet; *P. suproaloeve*, orange, five feet.

Rhipido dendron plicatile, red, four feet.

The genera *Apicra* and *Haworthia* are suitable for small Ward's cases, being very dwarf, and require scarcely any attention.

HYBRIDIZING.

BY G.

THE points to be gained by hybridizing are, first, to obtain the properties or qualities of a tender plant upon a hardy one, or, secondly, the colours of an ill-habited plant upon one of good habit. Generally speaking, these two points comprise all that can be gained; but there may be another object, which is only comprised in those mentioned by implication—the mixture of colour between plants of equal, or nearly equal, claims. The first of these objects is important, and has been accomplished to a great extent in the Rhododendron. The difficulties attending this operation with many flowers are, first, the species flowering at different seasons; secondly, their flowering in different places: for there are certain rules to be observed, without which failure is certain. The pistil of the plant which is to bear the seed has to be impregnated with the pollen or farina of the one which is required, to impart the desired property, and this requires some nicety. First, the seed-bearing plant must be watched, and as soon as the flowers open, the stamens, which hold the powder called pollen, must be taken out by small tweezers before they burst, indeed, as soon as they can be got hold of; this secures the pistil from being impregnated by the flower itself. The next is to observe from hour to hour, or from day to day, and as soon as the top of the pistil is glutinous it is ready for the operation, and at that time the pollen must be applied; consequently provision must be made for it, by forcing or retarding the other plant, so that the pollen shall be ready at the time, or gathering the pollen and preserving it till the female is ready. This is best done between two pieces of glass kept from the air. One thing is certain, if the pollen be not ready, there is no hope; but if it be ready beforehand, it is possible to keep it. I have carried it a hundred miles, and kept it some days, yet it has answered; but how long it could be kept has not yet been proved.

NOTES ON NEW AND SELECT PLANTS.

ANGELONIA ANGUSTIFOLIA. Nat. Ord. *Scrophularinæ.*—A pretty half-shrubby stove perennial, from Mexico, bearing spikes, six inches long, of deep violet-coloured flowers, with green inside the throat, and growing about two feet high. The leaves are narrow, opposite, and slightly serrated. It flourishes in sandy peat and leaf-mould, and is readily propagated by cuttings. (*Journ. Hort. Soc.*)

43. RHODODENDRON ALBUM. Nat. Ord. *Ericaceæ.* Syn. *Vierya alba*—Messrs. Rollison, of Tooting, received this plant from Mr. Henshall, their collector in Java; it bloomed in the stove at their nursery in the winter of 1856. It is a dwarf shrub, producing flowers when less than a foot in height, and although the specific name given to it by Blume would convey the idea of their being white, the campanulate corollas are of a deep cream colour, borne in terminal corymbs, and individually small for this genus, not exceeding an inch in diameter, and rarely more than eight in number. The foliage is copious, about four inches long by an inch broad, oblong-lanceolate, glabrous, bright green above, and cinnamon-brown beneath. (*Bot. Mag.*, 4972.)

44. HOYA CORONARIA. Nat. Ord. *Asclepiadeæ.* Syn. *H. grandiflora* and *H. velutina.*—An inhabitant of the moist woods and shady banks of western Java, where it was first detected and figured by Blume. It has subsequently been found by Mr. Thomas Lobb in the same island, who has forwarded it to Messrs. Veitch, of Chelsea; it appears, however, not to be an inhabitant of Java only, having been found by Dr. Wallich in Silhet. A drawing was made from a plant in Messrs. Veitch's establishment in November last. The flowers, which are produced in umbels, are larger than those of any other in the genus, with the exception of *H. imperialis;* it is not, however, a very attractive plant, the blossoms being of a pale greenish yellow, with five small red spots close around the base of the stamens; the diameter of the flowers is over an inch. The leaves produce an acrid milky juice, which is considered by the natives to assist digestion, who eat the plant uncooked, mixed with salt and capsicum. The foliage is about five inches long, by three across. (*Bot. Mag.*, 4969.)

45. Dendrobium heterocarpum, *var.* Henshallii. Nat. Ord. *Orchidaceæ.*—One of the several varieties of *D. heterocarpum* sent from Java by Mr. Henshall. The flowers are pale lemon-yellow, the labellum shading off to orange towards the base, with two crimson spots. (*Bot. Mag.*, 4970.)

46. Eucharis grandiflora. Nat. Ord. *Amaryllideæ.*—A noble bulb from New Granada, and Choco, in South America. The scape rises rather more than a foot in height, and bears on its summit six or seven large snow-white blossoms, similar in form to a broad-petalled Narcissus; four inches across, and highly fragrant. The cup is large, white, tinged with green. The leaves are of considerable size, and of a deep rich green. This fine stove bulb is deserving of a place in every collection. (*Bot. Mag.*, 4971.)

47. Begonia microptera. Nat. Ord. *Begoniaceæ.*—A native of Borneo. The flowers of this species, borne in a close terminal panicle, are not very attractive; they are blush-white, with pale yellow stamens, and of small size. The leaves, however, on the under side, are prettily varied with red on the veins, which are very prominent. (*Bot. Mag.*, 4974.)

48. Iris reticulata. Nat. Ord. *Irideæ.*—A singular and very handsome bulbous Iris from the Crimea, well adapted for pot culture in spring. The flowers are solitary, borne on slender angular stalks; their colour is an intense purple-blue, with a narrow, sharply defined, oblong, yellow spot at the end of each sepal, and purple spots on a lighter ground; they are sweet scented, having an odour resembling violets. The leaves are narrow, erect, and about a foot long. It is of easy culture, and flowers very early in the greenhouse, where a succession may be maintained by starting the bulbs at various intervals during the autumnal months. A soil made by a mixture of good loam, old cow-dung, and silver sand is most suitable, and when dormant the bulbs require to be kept dry. (*Hort Soc. Journ.*)

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NEW AND SELECT GARDEN HYBRIDS.

HELIOTROPE NON PLUS ULTRA (Lartay, père).—The corymbs are very large and compact, azure-blue. This fine variety has obtained the silver medal at the last floral exhibition at Bordeaux.

26. Rose, Georges Dupont (*Bourbon*).—Flower globose, four inches in diameter, brilliant red centre, with a velvety carmine margin, A strong and abundant bloomer,

27. Rose, Madame Lartay (*Tea*).—A large and full flower, salmon-yellow, very fragrant, and a strong grower.

28. Rose, Madame William (*Tea*).—Flower very double, pale yellow, changing to copper colour, globular, a vigorous and abundant flowerer.

29. Rose, Madame Ardens (*Hybrid Climber*).—Flower very large and double, clear red, shading off to carmine, under side blush-white, petals of a good substance. This variety climbs well, and is almost destitute of spines. The above four varieties are sent out for the first time by the raiser, M. Lartay, fils, of Bordeaux.

30. Rose, Belle Marie (*Tea*).—Large and double, white, shading to rose, resembling in form Souvenir de la Malmaison.

31. Rose, Catherine d'Albret (*Bourbon*).—Flowers full, about four inches across; centre bright red, shading off to a metallic purple. The latter two were raised from seed by M. Jacques Raynaud, of Bordeaux.

32. Calceolaria, *var.* Aurea Floribunda.—This is a dwarf, robust-growing, shrubby variety, well adapted for bedding purposes, raised by Mr. North, of Hyde, near Manchester. The flowers are bright clear yellow, of medium size, and borne in great abundance; the upper lip closing the mouth of the flower. The raiser informs us that he has grown it two or three seasons, and its habit is so strong, he has never had occasion to employ sticks to it.

FLORICULTURAL OPERATIONS FOR APRIL.

IN THE FLOWER GARDEN.

General Operations.—*Bedding plants*, examine the plan of beds and borders to be devoted to this class, and look over your stock of plants, to provide sufficient for the purpose, in which lose no time; attend to stopping the leading shoots, to make them bushy. *Beds and borders*, dress indefatigably. *Caterpillars and grubs*, search carefully and destroy them, especially on Rose trees. *Decayed shoots and foliage*, clear away at all times. *Edgings*, box, thrift, and other green edgings may still be planted, and will root freely if a supply of water be occasionally given; clip. *Evergreen trees and shrubs* may also be planted, but the sooner this is done the better. *Gravel walks*, in dry weather turn and lay afresh, roll frequently after wet. *Green fly*, wherever this pest appears, dip the shoots in tobacco-water, to destroy them. *Lawns*, form and repair by laying down turf and sowing grass seeds; mow, roll, and keep the edges neat. *Manure and mulching*, put round newly planted trees. *Plants in pots*, give a top-dressing to, if not previously done, and shift such as require it into a larger size. *Prune* such evergreens towards the close of the month, and should any deciduous have been neglected, do them at once. *Sticks*, place to blooming plants. *Watering* is required frequently, and should be given early in the day. *Weeds*, keep down.

Cultural Department.—*Alpines* may still be divided; plants required to fill up vacancies in the rockwork may now be planted. Any protection which has been given to those on rockwork may be removed, and a good supply of water given. A north or north-west aspect is best for their summer quarters, where they may now be permanently placed. *Anemones* in beds will require attention, to shelter them from sharp winds, frost, and strong sun. *Annuals, hardy*, sow still for a succession, and thin out where they have come up too thickly; *half-hardy*, transplant if sufficiently advanced. *Antirrhinums*, sow seed in the open ground the first week of the month. *Biennials and Perennials*, finish sowing, separate offsets, and plant. *Bulbs* which have flowered in glasses, etc., cut down the flower-stems and plant in the border. *Carnations and Picotees*, require a good deal of attention, and should have their growth promoted by every possible means. As the flower-stems advance tie them to sticks; keep the surface-soil frequently stirred, to render it open and sweet, as well as free from weeds; also dress off decayed leaves. Should any dark spots appear on the foliage, remove the plants at once, and apply sulphur, dusting it over and under the leaves. Liquid manure may be given, weak, every third time. Those not yet planted out for blooming in pots, beds, or borders, where they are to remain, should now be done. Seed may be sown in pots or boxes filled with rich loam, and plunged in a hotbed of about sixty-five degrees, where they can be protected from drying sun or wind. *Dahlia beds*, prepare by levelling the ground, after which they may be marked out; space should be given for the plants to be six feet apart. Well-rotted manure mixed with fresh loamy soil and a sprinkling of bone-dust, to the thickness of six inches, should be laid over the entire surface of the bed, and the whole be trenched over a foot deep, well mixing the entire together. *Fuchsias, bedding*, some will need pruning, and others cutting down to within four inches; such as have sustained little injury through the winter will only require the side shoots cut in. Remove the covering of leaves which was placed over the beds in autumn; a sprinkling of well-rotted manure should then be dug in. *Gladioluses*, plant five inches deep, placing a little clear sand around each bulb, which should be about one foot distance from each other. *Hollyhocks*, plant out towards the end of the month for latest bloom; strong stakes must be driven in deeply to secure the plants to. All the well-established plants in pots not required for planting out should be taken out of the frames, and sunk in the ground up to the rims; if any push up flower-stems, cut them down about the end of August, they will push side shoots and make fine bushy crowns before winter. *Hyacinths*, protect from the injurious effects of frost, sharp winds, rain, or strong sun, by an awning over the beds; cut away flower-stems when they have done blooming, but on no account injure the leaves of any bulbous plant. *Mignonette* may be sown in a warm border. *Pansies*, should premature flowers appear, pinch them off, which will cause a better bloom in course of next month, the time of exhibitions. See that the beds are protected from rough winds, and the soil is kept firm around the roots; stir the surface carefully. Those in pots require attention to watering regularly, and may have liquid manure twice a week. To produce fine flowers, pinch out the small shoots and weak laterals. Propagation may be effected by young shoots or slips, which should be pricked out under hand-glasses; attend to watering them, and they will soon take root. *Perennials*, those raised from seed last spring may yet be planted, and propagated by offsets. Sowing should now be finished. *Pinks*, see that they are not loosened from the soil by winds or frost, and give the beds a top-dressing of decomposed manure. For fine blooms pinch out or dis-bud them, leaving not more than half a dozen on one plant. Seed may still be sown in shallow pans, or in the border. *Polyanthuses*, plant out and propagate by offsets early in the month; guard from keen winds or frost; if the weather be very dry, they will require constant attention by water. Polyanthuses must not be allowed to flag. Search for slugs. Thin out pips as the flowers come on, leaving but six or seven on a stem. Seed may still be sown. Seedlings in flower should be marked, if worth propagating. *Ranunculuses*, about the middle of the month those planted last February will all be up. Look over them, and put any soil which they have displaced around the neck of the plants. Stir the beds very carefully, and, if no appearance of frost, water liberally; soft water is best. Sow. *Rhododendrons and hardy Azaleas* may now be layered. *Roses*, dress and fork over the beds, and if dry weather prevail, attend to watering. Look over the plants for grubs and caterpillars. *Mulching* should be attended to in the case of newly planted kinds. *Beds for Tea-scented and China Roses* grown on their own roots, may be prepared in an open airy place, where they will not be shaded by trees; the soil should be about eighteen inches deep. These kinds may also be pruned, but it should be done early. *Salvia patens*, plant out at the end of the month, if frost appears to have gone. As the plants grow, peg down the shoots. *Stocks, intermediate*, plant out now. *Tropæolum pentaphyllum* and *T. tuberosum* plant out in light rich soil in a south border if possible, where they may be trained against a wall or fence. *Tulips*, protection from frost and rain, hail, etc., is still necessary. If the weather prove dry, give a good watering, but be careful not to let the water get among the leaves.

IN THE GREENHOUSE, COLD-PIT, AND FRAME.

General Operations.—*Air*, as most plants are now growing freely, plenty of air is necessary at all favourable times to prevent their being drawn up weakly, but shut up early in the afternoon. *Frames* will require to be raised by the help of a few bricks at bottom, to accommodate plants getting rather tall. *Potting*, proceed with such plants as are pot-bound, and repot young stock, water them carefully afterwards. *Propagating* should be performed, whether by seed, cuttings, roots, inarching, or grafting, and the earlier the better, that the young stock may become established before winter; cuttings will generally require shading. *Stop* the shoots of soft-wooded plants, to make them compact and bushy. *Water*, see when and where this is wanted, and let the plants be properly supplied therewith, as this is very necessary to all plants when in the house. *Other directions* given last month may still be carried out.

Cultural Department in the Cold-pit and Frame—*Annuals, tender*, continue to sow for succession; prick out those sown in February and March into the hotbed. *Auriculas*, care must now be taken to protect the expanding flowers from strong wind, sun, or rain. Water freely, and admit air. Those done flowering set out, and take off offsets. *Bedding plants*, harden off, and see that you have a quantity sufficient for your purposes. *Bouvardias*, to have good plants for beds, or pot culture, turn out of pots, shake off the soil and trim the roots, cut down last year's shoots, retaining only three or four eyes; place in a cool frame, keep the lights on however, unless the sun be strong upon them; when they push, admit air gradually. Propagate by cuttings of the root, plunged in a hotbed. *Chrysanthemums*, give air, but protect from sharp frost. Take off more cuttings early in the month, insert singly in thumbs filled with rich mould and sand, lightly water and plunge in a hotbed, keeping close till rooted, then harden off. *Cyclamens*, as soon as out of flower, place the pots on their sides, as a precaution against their being watered, either in a cold-pit or under a wall. *Dahlias*, repot into larger sizes, give air. When sufficient cuttings have been taken off, the roots may be divided, and will make two or three strong plants each, which may be planted out by the end of the month. *Fuchsias*, see last month's directions; repot old plants. *Ixias*, etc., remove the lights altogether. *Lilium lancifolium*, attend to watering. *Mimuluses*, when the roots fill the pots, shift into forty-eights, using the compost as before; divide large plants. *Primroses*, *Chinese*, pot off into large sixties, in vegetable mould and sandy peat, with a portion of friable loam and turf well chopped, but not sifted. Well drain the pots, and give air. *Verbenas*, give air as much as possible, yet avoid cutting winds and frost; re-shift in time. Pinch out the tops of those intended for bedding.

Cultural Department in the Greenhouse.—*Azaleas*, require constant attention to watering, a little moist heat is beneficial when coming into bloom; shade those in flower, and keep clear of thrips. *Bulbs*, introduce. *Cactuses and Succulents* may be watered more freely. *Calceolarias*, such as require repotting should be attended to in this manner. Tie out, as they increase, to neat sticks; a little liquid manure may be given at times. Look out for green fly. The same may be said of *Cinerarias*, which should be placed near the glass, and shaded from hot sun. Seedlings should be looked over. *Dielytra spectabilis* requires a good supply of water when coming into bloom. *Epacrises and Ericas*, cut back those which have gone out of flower; those coming in should have plenty of air. *Fuchsias*, shift seedlings as required. Water may be given freely; if green fly appear, fumigate immediately. *Oleanders* may be encouraged by a little extra heat. *Pelargoniums*, tie out into a good shape; air must be given in the morning to strengthen and harden the wood, but shut up early in the after part of the day. A little manure-water may be given occasionally. Never allow the plants to flag for want of water. See to green fly, and fumigate immediately one is detected. Fancy kinds are more delicate than the others, and should have a little higher temperature, and not so much water. Stop, pot, and increase for autumnal supply. *Roses in pots*, syringe over-head and water with liquid manure, as they will soon be coming into bloom. Tie up flowering shoots. *Scarlet Geraniums*, increase the supply of water.

IN THE STOVE.

General Operations.—*Air* may be given more freely as the sun obtains greater power. *Bark*, where this is used, fresh bark may be incorporated with the bed, which should have a portion removed for the purpose, and the rest turn over. *Baskets*, renew, and fill with *Hoya bella*, *Æschynanthus*, *Achimenes*, etc.; dip them in lukewarm water about once a week. *Climbers*, continue to dress, train, and tie up. *Heat*, let a brisk heat prevail during the day, relaxing in some degree at night. *Red spider and insects*, these must be looked after and destroyed; sulphur and water applied with a brush over the flues or pipes is the best remedy for the former pest. *Potting*, by all means finish now, if not previously. *Propagate* by cuttings, seeds, layers, suckers, etc., according to the nature of the several kinds. Plunge in a hotbed, which will promote a quick growth. *Temperature* this month may range 80° by day, to 70° by night, and for the Cactus tribe 10° or 15° less. Let neatness be attended to, and all moss, dead leaves, etc., be removed from the walls or paths.

Cultural Department.—*Achimenes*, *Gloxinias*, etc., divide and repot; form specimens by planting a few tubers in shallow pans, in a mixture of sphagnum chopped up, turfy loam, and leaf-mould. *Æschynanthus*, train to trellis-work, or suspend in baskets. *Amaryllis*, pot and plunge in bark beds, if not previously done. *Gardenias*, duly attend to have a succession of bloom, keeping some in a frame, and afterwards introduce them into the stove. *Ixoras*, make specimens by tying them out to form handsome bushy plants. *Orchids and Succulents* may have an increase in the quantity of moisture, which may be provided by more liberal watering, and by dashing it over the flues, pipes, or walks daily.

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QUESTIONS, ANSWERS, AND REMARKS.

Strelitzia reginæ.—I have had a nice plant for several years, it has, however, never flowered with me. It has a rich soil, and is kept in a moderate heat. What am I to do with it to make it bloom?—*B. W.* [The temperature in winter should be kept at about fifty-five degrees, and the soil should not be too rich, rich soil tends to throw the plants too much into leaf; light red sandy loam, or sandy loam and peat suit the Strelitzia best. Having soft fleshy roots, a very moderate supply of water is necessary, except when coming into flower, when it may be freely administered.—Ed.]

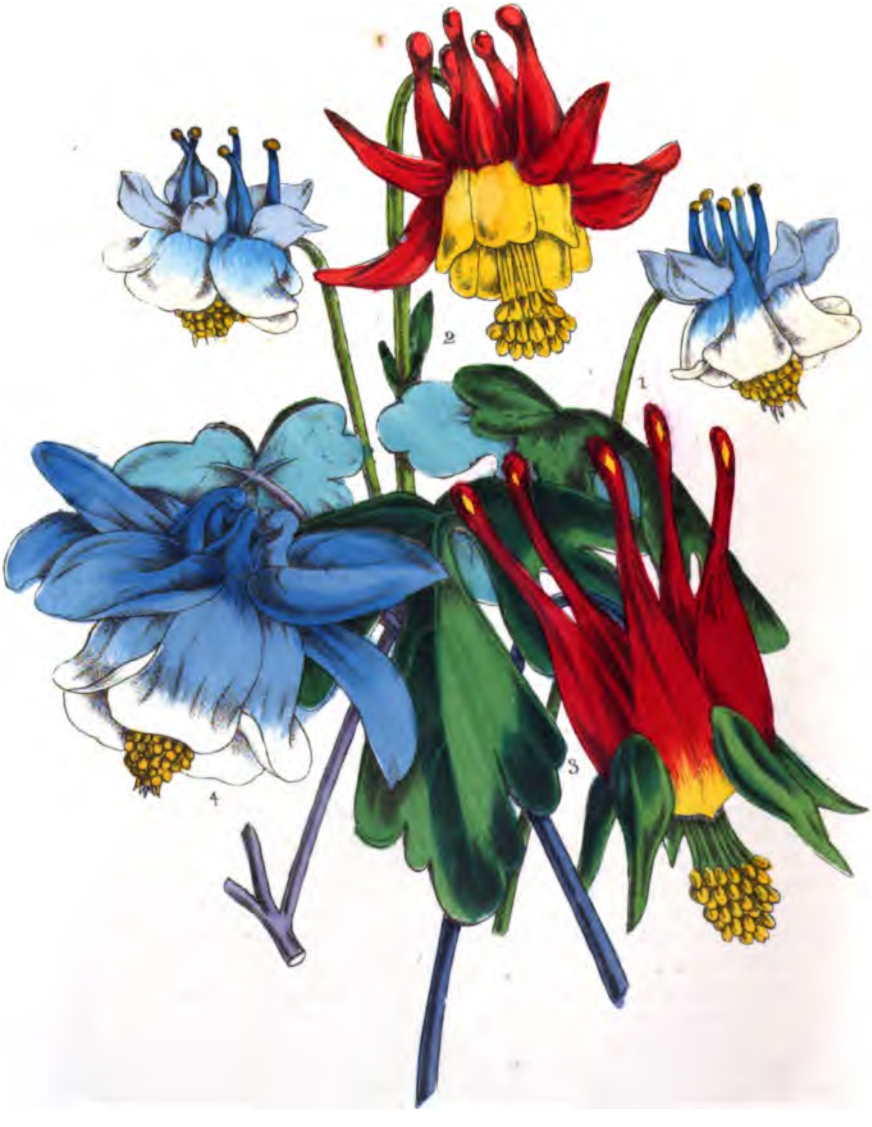
Greenhouse Ferns.—Being desirous of cultivating this interesting and attractive tribe on a small scale, to suit the dimensions of my little greenhouse, it would assist me if you, or any of your able correspondents, would give me the names of a dozen species of such a kind as require but low temperature.—*Eboracensis.* [The following will flourish in a low temperature, and are all of considerable beauty:—Adiantum Capillus Veneris, Alsophila palmatum, Asplenium diversifolium, Cheilanthes farinosa, Davallia Novæ Zelandiæ, Gleichenia dicarpa, Lastrea glabella, Lomaria Magellanica, Platyloma rotundifolium, Polystichum falcinellum, P. pungens, Scolopendrium Krebsii.—Ed.]

Horticultural Society.—A meeting took place, March 3rd, Col. Challoner in the chair, at which there was a very full attendance, when eleven new members were balloted for, and elected. Of plants and specimens deserving a special notice in the *Cabinet*, we may mention cut blooms of a very fine new Thunbergia, from Mr. Veitch, allied to *T. grandiflora*, with large light blue flowers, somewhat resembling those of a Gloxinia. A new Melastomaceous plant, named *Monochætum ensiferum*, bearing beautiful bright rose-coloured blossoms, and of dwarf, compact, and bushy habit. Three plants of a handsome Camellia, called *Saccoi nova*, raised from seed in Italy, by Sig. Sacchi; it is a moderate-sized flower, beautifully imbricated, and very high in the centre, colour clear rose. Also C. Countess of Orkney, white, with rosy stripes. *Rhododendron Jasminiflorum*, a nice plant from Mr. Veitch, with several trusses of bloom out; a very attractive species. A new Oncidium, exhibited by Messrs. Jackson and Son, of

Kingston, was well deserving of attention. The stems are very long, and bear numerous buff and yellow flowers. A variety of *Lycaste Skinneri* was also shown, having the labellum pure white. *Cypripedium villosum*, from Mr. Lawrence, gardener to the Bishop of Winchester; a fine specimen. *Vanda tricolor*, from Mr. Edmunds, gardener to the Duke of Devonshire, at Chiswick House, who also sent half a dozen pots of the double white *Primula Sinensis*, in very large pots, each plant being very bushy and full of blossoms; all the plants were extraordinary specimens, and measured *from eighteen to twenty inches across*. From Messrs. Cutbush, of Highgate, we noticed a beautiful selection of Hyacinths, all being excellent varieties. The gardens of the Society contributed, among other things of less note, several new hybrid Begonias and Epacrises; the new and large Mignonette; *Ardisia lentiginosa*, with white and red berries; *Coccocypselon repens*, an excellent thing for suspending in baskets, the shoots hanging down gracefully, and bearing clusters of blue berries, which remain on all the winter; it propagates freely by seeds. *Pinus Brutia* was represented by a cut branch ornamented with six cones; and from John Howes, Esq., were shown some exquisite dissections of leaves and seed-vessels of plants. A specimen of the branching Pine Apple, from Malacca, excited much interest, having been fruited for the first time in this country. The base of the main fruit sends out as many as a dozen young fruit, and the upper part, or crown, is covered with a very short fringe of stunted leaves. A book of drawings of this curiosity was also produced, which were made by an European artist in China, for the late Mr. Reeves. A resolution of the Council was explained by the Chairman, to the effect that the annual subscriptions of newly made members would not be charged till after the 1st of May.

We are happy to be able to announce that the Society has at length made arrangements for a display of "Horticultural manufactures" at their forthcoming exhibitions; and invite the makers or inventors of such articles as the following to send in specimens. Class A, *Heating Apparatus*—boilers, hot-water pipes, furnaces, flue-tiles fixed, etc. Class B, *Machines*—for mowing, wheeling, sowing, transplanting, fumigating, watering, vermin traps, pumps, hose, etc. Class C, *Garden Tools*—spades, forks, hoes, rakes, etc. Class D, *Cutlery*—knives, scissors, shears, scythes, pruning instruments, etc. Class E, *Pottery*—garden-pots, bricks, pipes, tiles, border-edgings, etc. Class F, *Labels*—in wood, metal, or glass; plain or enamelled, etc. Class G, *Objects of Decoration*—as glazed cases, aquariums, vases, designs for fountains, flower-pots, baskets, brackets, chandeliers for conservatories, etc. Class H, *Materials for Construction*—roofs, glazed and unglazed, ventilators, asphaltes, concretes, slate-work, etc. Class I, *Protecting Materials*—nets, wire-work, woven fabrics, mats, straw coverings, tents, etc. Class K, *Bee Hives*—with or without honey, including all apiarian apparatus, etc. Class L, *Philosophical Instruments*—as thermometers, hygrometers, actinometers, etc. Class M, *Miscellaneous*—for any articles used in gardens, not included in the other classes. We consider this a step in advance, and in the right direction. All applications for space to be made to the secretary, on or before May 16th.

APHELEXISES.—Cuttings taken any time in August root readily in silver sand under a bell-glass, in a gentle heat of about seventy-five degrees; as soon as rooted they should be potted off into small pots, in very sandy peat, and set in heat again till they are rooted round the pot, when they should be hardened off. The soil I have always succeeded with, and recommend, is rich peat, made very sandy; if it be poor, a little light loam mixed with it will greatly benefit it. The best time to shift them is the month of July. If the plants are not bushy, any shoots may be cut off at that time to make them so; and, after shifting, they should be set out of doors in a similar situation to that which Heaths would be set in. The advantage of giving them a long period out of doors is so great, that I should be inclined to put them out by, or even before, the middle of July, and an occasional watering with clear liquid manure, about once a week during the spring and summer months, will be found of great advantage to them. In winter, a dry and very airy part of the greenhouse should be chosen for them, as they are impatient of a confined atmosphere. Treated in this way, they begin to show colour by the end of January, and by March are ornamental enough to grace the conservatory, where they will make exquisite ornaments until the season for removal out of doors.—*T. S., Lincoln.*



AQUILEGIAS.

The Floricultural Cabinet.

MAY, 1857.

ILLUSTRATION.

AQUILEGIAS.

OF this genus several species have long inhabited our gardens; one, *A. vulgaris*, is mentioned by Dr. Turner, in that part of his "Herbal" which bears date 1564. The four species figured in our plate are, however, of much more recent introduction, and all handsome plants, worthy of a place in any garden. For rockwork there are few things which are so suitable as the varieties of this tribe, which require little or no trouble in cultivation, grow well in common soil, and are readily increased, either by division of the roots or by seed. In our illustration, No. 1 is *Aquilegia Kanaoriensis*, a native of the dry, rocky districts of north-west Himalaya, from Cashmere to Kamaon, growing at an elevation of from ten to fifteen thousand feet. It was introduced into the Royal Gardens of Kew through Dr. Thomson, and flowers in the open border in the months of May and June, attaining a height of twelve or fourteen inches. No. 2, *A. arctica*—this very showy plant is a native of the wilds of Siberia; it is a very hardy kind, grows about eighteen inches high, and makes a fine show on rockwork. No. 3, *A. Skinneri* (syn. *A. Mexicana*), is by far the handsomest of the genus, and although from Guatemala, a country much to the south of any which had been previously supposed to produce a species of Columbine, it has proved to be perfectly hardy, and has borne some of our sharpest winters with impunity. It grows about two feet high, and flowers in great beauty during the summer and autumn. No. 4, *A. jucunda*, a fine species from Siberia, growing about one foot high; when planted in a mixture of sandy loam and leaf-mould. It requires to be kept free from damp when in a state of repose, but freely supplied with moisture during the season of growth, otherwise the plant seldom flowers. Its pretty blue and white blossoms come to perfection in July. This species was raised in the gardens of the Horticultural Society, from seeds received from the late Dr. Fischer.

In addition to the above, the following species are among the best of the tribe, and may serve as a guide to intending purchasers—all of them may be procured at the principal nurseries:—

Aquilegia alata alba, eighteen inches, flowers white; *alpina*, twenty inches, blue; *atrosanguinea*, eighteen inches, deep red; *Canadensis*, eighteen inches, orange, red, and green; *formosa*, twelve inches, red and orange; *fragrans*, eighteen inches, pale red; *glandulosa*, nine inches, white and blue; *grandiflora*, fourteen inches, large size, blue; *leptoceras*, eighteen inches, blue and white; *Siberica*, twelve inches, blue; *sulphurea*, twelve inches, pale yellow.

NOTES ON THE PHILOSOPHY OF GARDENING.

BY CLERICUS.

PROPAGATION OF PLANTS BY STRIKING.

MANY persons who are gardeners by profession, and others who engage in this delightful recreation, are ignorant of the true principles of the art, and unable, not unfrequently, to explain the reason of many processes which they are in the daily habit of practising. To assist such in gaining a knowledge of the "why and because" of many things connected with the successful practice of gardening and operations connected with the propagation and culture of plants, I have drawn up a few brief explanatory remarks, and first on that indispensable knowledge to a gardener, the art of propagating by striking cuttings, layers, etc.

When cuttings of plants are put in, being deprived of their natural feeding organs, namely, the roots and fibres of the parent plant, they receive a temporary check to their growth, and have, to preserve their vitality, to fall back in a great measure on their own resources, and live almost entirely on the nutrient materials they are already in possession of, partly laid up in the cells of their stems, but more especially in the buds, or growing parts. Hence it is generally of importance to have several buds on each cutting it is desired to strike, while leaves, or at least a number, except with evergreens, are a disadvantage, by giving off too great an amount of water and oxygen. With evergreen plants the action of leaves is so slow, that they may be left on, to assist in maturing the pulp for the new roots, although in all cases no such organs should be allowed below the surface of the soil, where they only tend to produce canker, and other diseases. The lower end of a cutting, especially if from a very succulent plant, ought to be cut with a heel of hard or woody stem, wherever practicable, and must likewise be cut sharp and smooth; this is to prevent the evils of stagnation, and consequently rot, through water remaining in the irregularities. The application of collodion for the same purpose is very useful, the thin film sealing up the end in a manner so as to shield it from such injuries in a very complete manner. The heel of older and harder wood is beneficial in preventing too much moisture being taken up by the more open vessels, which would render the cutting dropsical, as it is termed. For the same reason plenty of drainage is essential, and many plants will only strike in pure sand, or in soil where this porous material forms a large proportion of its ingredients, affording a quick means for the water to pass off. In these cases, water may be supplied frequently, but in small quantities, and thus the risk of stagnation is avoided. Stagnant water accumulating around the base of cuttings induces decay, and the production of numerous animalcules, fungi, and other injurious agents, clogging up the pores with sour and destructive materials. Heavy and close soils, as well as those which are too rich, being retentive of water, are bad for most cuttings.

Cuttings, before the formation of new fibres or rootlets, have but scanty means for furnishing themselves with a supply of food, they are unable therefore to bear the loss of much water or oxygen through their leaves, hence shading and bell-glasses are useful; the first in modifying the intensity of light, as vegetable substances submitted to it part with oxygen, and the latter as a means of maintaining a certain degree of vapour in their atmosphere; yet light must not be altogether excluded, any more than air, both being of importance in the formation of healthy pulp. From these considerations it will readily appear that, out of doors, a northern aspect, screened from the sun and wind, is found the best place for putting in cuttings in the open border. The same principles of shelter apply to the striking of buds or eyes.

Some plants are increased by layering. The strawberry, for instance, sends out runners that take root; the willow and privet, if their branches be bent down to the ground, send out roots, and, if then separated from the parent stock, form new trees. In the generality of instances it is necessary to interrupt the downward flow of the sap, so as to cause the formation of root-fibres; this leads to the practice of slitting, or cutting in a sloping direction upwards, or ringing the stems and branches of various trees, shrubs, and plants intended for propagation by layering, and all of which operations fulfil the design of checking the descent of the pulp, while the sap going up in the central parts is not interrupted, consequently the layered branch grows as well as if it had not been so treated. In all these cases, if the soil be too damp, disease is induced. By the close of autumn, layers are generally sufficiently furnished with young roots to feed them without farther dependence on the parent plant, and may be separated; but they are still weakly, and in such cases require protection from bright sun, and attention to watering. While layers remain in communication with their parent plant, they are in no danger of being destroyed for lack of food; but when this connection is severed, attention to a due supply of moisture for a time is most essential.

ON THE CALCEOLARIA.

BY H. W., HACKNEY.

THE great perfection to which this plant is now brought by improved cultivation is well known, and examples of it may be seen at our exhibitions; so great is the change in "what used to be," even in the same varieties, that, as formerly grown, they would now be scarcely recognised. Although the culture of Calceolarias is attended with some little trouble, yet there are few flowers, in my opinion, which hold out greater hopes of still further improvement, and being an experienced hand, I have gathered a few hints together for insertion (if you think fit) in my old friend the *Cabinet*, hoping they may not be deemed amiss, if so, I shall perhaps forward something more on my favourite plant at an early opportunity.

First, as to the shrubby and half-shrubby varieties: these may be increased by slips taken off in October and November, the lower temperature and prevalent moisture inducing a formation of young rootlets; the *true* shrubby kinds may be struck in summer, from well-ripened shoots, which establish themselves, when potted off, in time for winter, and require small pots, with a mixture of light sandy loam and vegetable mould in equal proportion. Immediately they are potted they should be set in a close frame for a month, which will immediately contribute to an early growth, for exposure has a tendency to dry the foliage and injure the plants. The soil should be kept moist while in the frame, but the foliage ought not to be wetted, as it has a tendency to rot the plants. When November is nearly past place them on a shelf in the greenhouse, near the glass, where they should remain during the whole of the winter; here they will grow freely, and as soon as their roots fill the pots, they must be shifted into larger sizes, which encourages their growth; for, if not removed, there would be a crop of weak-blooming shoots, which would injure the proper bloom the ensuing season. In March repot them into twenty-fours, with sandy loam enriched with well-rotted cow-dung; the latter being very beneficial, and well suited to the Calceolaria. When April comes in, repot into double the size, with the same compost, or perhaps with a greater proportion of decomposed cow-dung, and make provision for a very free drainage. A free supply of water and liquid manure is essential here, and affords a corresponding quantity of nutriment; fresh water should be regularly used, and every third watering, liquid manure. The plants should be kept in the front part of the greenhouse during the time elapsing from autumn to the close of the blooming period, which is generally the month of July. In hot sun a canvas screen is requisite over the glass. When the stems are withered, I repot those plants which are desired for specimens the following year, reducing the balls, and place them in pots one-half the size they had been grown in. After this operation they should be placed in a cool frame, and kept shaded for a month, and afterwards exposed in the shade, in the open air, till about the middle of October, when they may be removed to the greenhouse as before. They will require potting again in March and April following, after which they may be treated as in the past year. It is a good plan to take off a large stock of offsets every autumn, so as to have a quantity of large two-year-old plants to bloom every season. Under this plan of treatment plants may be had from two to four feet high, clothed with blooming shoots in each part, and these will form a head three feet and upwards in diameter.

If there be a great number of plants, some may be turned out into the open border, making choice of a position where they may have shade from eleven to three o'clock in the afternoon, as the intense heat of the summer mid-day sun is injurious to the Calceolaria. To raise them from seed, proceed as follows: as soon as ripe, in the middle or end of July, let it be sown in pots, placed in a shady part of the hotbed, or forcing-house, where the young plants will speedily come up; the soil must not be kept too moist, as it renders them very liable to rot off. When they have become sufficiently strong to bear potting off, which will be by the middle of September, pot them in sixties, in vegetable mould and loam, with *free drainage*—this is of great importance. After potting, set them in a cool frame, which should be shaded from mid-day sun, and kept close for a fortnight, gradually exposing them to the air; when strong enough, they may be removed to a greenhouse, in which find a shady situation for them. The plants will be strong ones by the end of autumn, and will bear winter treatment without the least injury, and, if thus got forward, they will bloom the next season. This immediate sowing will not do for such seed as is late in the year, the difficulty consisting in the almost certain "damping off" of the tender little plants during winter, notwithstanding the greatest care that may be bestowed upon them, as I have myself too often experienced.

REMARKS ON THE TULIP AND TULIP-CULTURE.

BY A NORTHERN GROWER.

ACCORDING to Gesner, the Tulip was brought to Europe from the Levant in the year 1559, and we further learn that it was cultivated in England by James Garnett, in 1577. The Tulip became an object of particular interest in the Netherlands about the middle of the seventeenth century, the period when the "Tulipomania" was raging to that height which has found no parallel, except perhaps in the South Sea bubble, and the railway schemes of our day. I need not particularise on the extent to which this species of floral gambling was carried, but refer the reader to an amusing account of it in Mackay's "Extraordinary Popular Delusions," merely observing that the taste for Tulips increased in England on the decline of this excitement abroad, and year after year, new and greatly improved varieties were raised, resulting in the many splendid flowers now in cultivation.

Florists have divided Tulips into three classes, viz.:—1, *Byblœmens*, such as have a white ground, variegated with purple, the edges well feathered, and the whole forming a well-shaped cup. 2, *Bizarres*, having a yellow ground, variegated with crimson-purple, velvet, etc. 3, *Roses*, with a white ground, variegated with rose colour, scarlet, or crimson. To propagate the Tulip by seed, for new varieties, the most successful method is to select such as have good strong stems, with well-formed cups and most perfect flowers. Such as are selected for seed ought to be exposed to the weather, for shading prevents the seed coming to perfection; it should remain on the stems till the seed-vessels, or capsules, open, then cut them off, with a few inches of the stem, and lay them to dry. The best time to sow the seed is the month of October. Procure some shallow pans or boxes, which fill with light sandy loam, making an even surface to receive the seed, which cover with about half an inch of light soil, mixed with one-third of stable manure. They will not appear until about the middle of March following, and as the tops will again be dead by the beginning of June, it is necessary for them to remain in the pans for two years, as they are in general five or six years before they flower. After the second year they may be taken up, and planted in good new soil every season.

An open airy place is the best situation for forming the beds for flowering bulbs. The natural soil should be taken out to the depth of about eighteen inches, and the space filled up with good sandy loam from an old pasture, mixed with a small portion of well-rotted two-year-old horse-dung. The bed must be raised three inches above the paths, at the outsides, and four inches at least in the middle; this convexity will render it more capable of throwing off the water when at any time exposed to heavy rain. The planting is best done in the beginning of November, placing the bulbs about five inches from each other in the rows, and the same distance from row to row, being careful to put in each hole a little fine river sand, before you introduce the bulbs; this is not only of great service to the roots, but also tends to prevent the attacks of wire-worm and grubs. The proper depth of the holes is about four inches. After planting, they will require very little attention until the latter end of February, when most of them will make their appearance above ground; they must then be carefully examined, and if any leaves or bulbs are found to be injured by canker, the affected part must be taken off carefully, a fine dry day being chosen for the purpose; if the wounded part be exposed to the sun and air, it will presently heal over. When the flower-buds make their appearance, great care must be taken to shelter them from hailstorms, heavy rain, or frosts. This may be effected by having pieces of circular board, about twelve inches across, to slide on sticks by a hole through the centre. These being stuck in the bed by the side of the bulbs will form a cover to the flower-buds, which can be raised higher at pleasure. This method I think preferable to covering the beds with mats and hoops, or even an awning, until the buds be farther advanced, as I have proved by experience that the latter means are apt to draw up the stems so weakly as to render them almost unequal to bear the cups, and at the same time so weakens the bulbs, that good flowers are difficult to be obtained. As soon as the colours of the flowers begin to show themselves, it is then necessary to cover the bed with an awning, as exposure to either sun or rain would cause the colours to mix or run, and thus spoil the beauty of the flowers; as soon as the petals begin to fall, the awning should be removed however, and the bulbs prevented maturing seed, by breaking off the pods, which will strengthen them greatly. They may, and indeed in all cases ought, to be allowed to remain in the ground until the foliage attains a yellow hue. Lay them then on boards, in a dry airy situation, under cover, until the time for planting again comes round.

ON THE MANAGEMENT OF TROPICAL FERNS AND LYCOPODIUMS.

BY R. S.

FERNS and Lycopodiums being such universal favourites, and of simple culture, whether hardy or tropical, a few remarks may be acceptable to the amateur or others about to commence Fern culture in the stove. Nearly all the tribe delight in shade, and where there is a stove adapted to their culture, a proper situation for them is generally attainable. Planted on rockwork at the end of a house, where the climbing kinds are permitted to run up the wall, is perhaps the best, and in such a situation, provided the temperature at night in winter be maintained at from 55° to 60°, they will flourish in surpassing beauty. A great point, and one frequently overlooked in the case of these plants, is to secure for them a period of rest, by reducing the temperature in winter to a sufficient degree. Where this is neglected the plants become drawn and weakly, so tender indeed, that a little sun, damp, or extra air at once disfigures them. From long experience, I find the best condition, as to temperature, suited to their period of rest is from 50° to 60°; a medium between these two points may be maintained, but not much exceeded, in the range of night temperature in winter: a few degrees more for the day may be safely allowed. In July and August artificial heat ought to be discontinued, and if the stove be kept aired during summer, though in moderation, the plants may be kept in good health and vigour. The soil best adapted to the wants of Ferns and Lycopods resembles that which is generally used for Orchidaceous plants, namely, peat of a very fibrous or rather spongy nature, abounding in decayed moss; such as is close and heavy is unfit for the purpose. The small-growing kinds need nothing else for compost; but for the larger sorts, the mixture of some moderate-sized pieces of yellow turfy loam is of advantage. Enough of silver sand should be used to give the soil a gritty appearance. To keep the mixture porous, and to secure a proper drainage through the whole, there is nothing so useful as well-burned cinders, proportioning the size of the pieces to that of the plants.

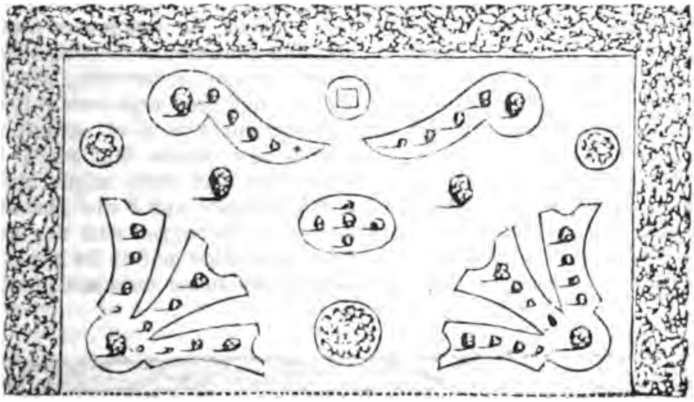
Potting may be done when the plants begin to make new roots, in March; they should be so placed that the crown of the roots is about on a level with the top of the pot, and have a free drainage. A too frequent impression prevails that water may be unsparingly used in pot culture, which is erroneous. It is true an abundance may be administered whilst in a state of vigorous growth, and they should not be allowed to become quite dry; the more delicate and succulent kinds perish if over-watered; hence the supposed difficulty of growing the delicate gold and silver *Gymnogrammas*, many *Nothochlænas*, *Cheilanthes*, and others. Syringing the fronds, and sprinkling slightly with tepid rain-water, is very advantageous to all but the small hairy and succulent species. During the warmest summer weather it may be done once or twice daily.

Some Ferns are increased by seed obtained from the ripe fronds, which is sown in pots of fine mould, half filled with potsherds, to secure good drainage. It is best sown thinly on the surface of the soil, and may be covered with a bell-glass and set in a shady part of the house. When the young plants are large enough to be handled they may be potted off in small pots, set in bottom heat for a day or two, and shaded. Most frequently, however, Ferns sow themselves, and thus save the trouble of gathering the seed and sowing it; numbers of young ones may generally be found springing up at the foot of the parent plant. Many kinds, again, may be increased by division of the rhizomes, each piece having some of the fibres attached. A few sorts produce young plants at the extremities of the fronds; these may be taken off, potted, and shaded as before.

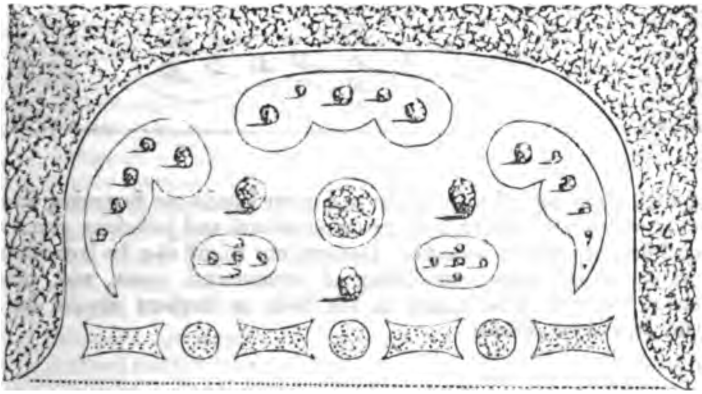
Lycopodiums may be increased by cuttings or layers; rotten leaf-mould and loam with sand suits them best, in other respects they require the same treatment as exotic Ferns. In an early number I purpose to give a descriptive list of such greenhouse and stove Ferns and Lycopodiums as are within the means of most persons as to price, which may be procured without much difficulty, and afford pleasure to all by the beauty of their forms and delicate markings.

DESIGNS FOR SMALL FRONTAGE GARDENS.

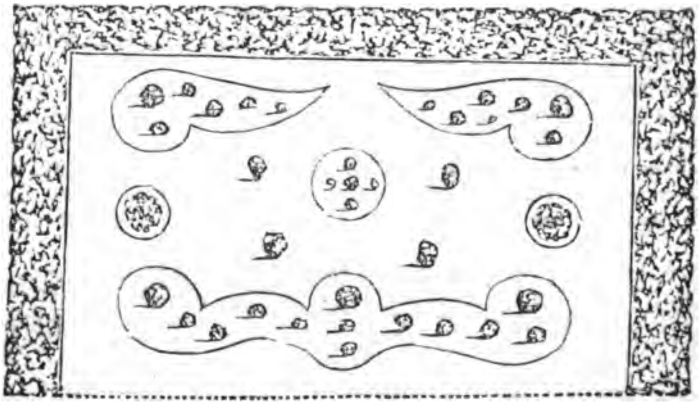
BY. T. RUTGER, ESQ.



The accompanying designs are intended as frontages for small suburban residences or cottages, and may be laid out on any scale suitable to the allotted space. The designs being intended for small grounds, there is not room for much display of taste or variety, but it may not be amiss to offer a few hints upon them. And first with regard to the walks:—These I should prefer being laid down with grass; or, if gravel be preferred, with neat plants, about two inches high at the margins.



With regard to the plants and shrubs proper for gardens of this description, I should recommend their maximum of growth to be in proportion to their situation, as, by this means, a greater variety may be introduced. I have seen instances where a single tree has overshadowed a whole garden, rendering void the possibility of anything else growing in it. The shrubs should in all cases comprise as great a variety of evergreens as possible. Among the commoner kinds which I have found to flourish in suburban gardens are the following: Common and variegated Hollies, Box, Chinese Arbor-vitæ, Aucuba Japonica, Red Cedar, Evergreen Privet, and the large-leaved Irish Ivy; the latter plant, which grows luxuriantly in most situations, might not only be used to cover walls and fences, but might be trained up in pyramids, or in any other form that taste might point out, by having a framework fixed in the ground; and if the Jasmine, Clematis, or any other light climbers were intermixed with the Ivy, they would give a relief, and at the same time add to its beauties during the summer months. Respecting deciduous trees and shrubs,



I should make use of the lighter and more handsome flowering kinds that would thrive, and such as, by an occasional and judicious pruning, might be kept within bounds. Decorations might also be introduced upon a limited scale, consisting of ornamental vases, and other tasteful objects. The plants in the beds or borders should be of dwarf and select kinds.

A DESCRIPTIVE LIST OF STOVE AND GREENHOUSE PLANTS, REMARKABLE FOR THE VARIEGATION OR HANDSOME APPEARANCE OF THEIR FOLIAGE.

BY MR. WM. AITON, SHEFFIELD.

THE floral exhibitions, especially those which have been held at the Crystal Palace, indicate the increasing favour with which plants of ornamental foliage are viewed by the public, as well as the attention which is now devoted to their cultivation. As a class, I am persuaded they fairly eclipse many plants which are cultivated solely for their flowers, and hope the encouragement afforded to their extended cultivation by public competition, and the offer of liberal prizes, may give such an impulse as will cause them to be shown at every floral exhibition throughout the kingdom. A selection of the best (and many of these are now to be had at a moderate price) should be in every collection, and will not fail to afford gratification to the purchaser and his friends. One great recommendation of plants with ornamental foliage is, that many of them are beautiful objects all the year round, and in this respect possess additional merit. The descriptions given with each plant are necessarily brief, but such, it is hoped, as may enable any one unacquainted with the species to select such plants as are in accordance with his taste. The stove and greenhouse plants will be described separately, and although many of the former would grow in the temperature required by the latter, yet they are only to be seen in all their beauty when grown in a warmer atmosphere.

FIRST DIVISION.—STOVE PLANTS.

Anæctochilus intermedius.—Foliage beautiful dark green, with golden yellow lines in the middle of each leaf.

A. Lowii.—Fine, large, deep velvety green leaves, striped and veined with coppery red.

A. setaceus.—Very dark brownish green, soft velvety foliage, handsomely marked with golden yellow veins.

A. xanthophylla.—Similar to the above, but having a broad yellow stripe down the midrib of each leaf.

All the above are dwarf-growing herbaceous plants; the flowers are inconspicuous, but the want of attraction in this respect is amply compensated by the beauty of their foliage.

Aphelandra squarrosa.—Foliage rather large, bright olive-green, with a broad silvery white stripe up the midrib, and narrow ones on the side veins. The flowers yellow, in a spike.

A. squarrosa, var. *citrina.*—Foliage bright clear green, the stripes on the side veins white, and much broader than in the preceding species. Blossoms pale yellow, and stalks reddish brown.

A. squarrosa, var. *Leopoldii.*—Large, handsome, dark green leaves, marked with pure white veins. Flowers yellow.

Begonia splendida.—A dwarf species, the young foliage covered with crimson down, having a very handsome appearance, resembling plush.

B. Thwaitesii.—Leaves prettily variegated and mottled with green and lead colour. Flowers blush and pale yellow. This succeeds best if grown under a bell-glass.

B. xanthina, var. *marmorea.*—Foliage large, marbled and blotched with creamy white on a dark green ground. Stalks pink. Blossoms white, shaded with salmon.

Bertolonia marmorea. Syn. *Eriocnema marmorea.*—Leaves about three inches long and two across, curiously ribbed and veined as in melastomaceous plants; with broad alternate stripes of olive and greenish white. A pretty, little, dwarf, free-flowering plant, the blossoms pink, and stems brown.

Bilbergia Leopoldii.—Foliage from two to three feet long, handsomely variegated with alternate bands of green and white. The flowers crimson, tipped with purple, in long drooping spikes.

B. marmorata.—The leaves long, prettily chequered with brown on the back; stem and large bracts of the flowers bright rosy red, bearing green, blue, and white flowers.

Caladium bicolor.—An old, well-known stove plant, having large heart-shaped leaves, rich crimson towards the inside, and irregularly margined with bright green, giving the plant a striking appearance.

C. bicolor, var. *picturatum.*—Similar to the above, differing in the crimson colour running along the veins in a stripe.

C. marmoratum.—Foliage green, covered with conspicuous blotches of marbled white.

C. pellucidum.—Foliage green, with red spots.

C. pictum.—In this species the leaves are variegated with cream colour on a light green ground.

C. pœcile.—Leaves lively green, with white stripes in the centre.

Calathea pardina. Syn. *Maranta pardina.*—A plant remarkable for fine large foliage, of a rich glossy green, marked with a row of square, violet-black blotches on each side of the midrib of the leaf. The flowers are also very showy, of a clear light yellow.

Cissus discolor.—One of the most elegant of all the variegated plants, foliage rich velvety crimson and mulberry colour, beautifully marbled with pink and white; stems purple-red. A stove climber, requiring to be grown in a moist heat to bring the colours to perfection.

Coleus Blumei. Syn. *Plectranthus concolor picta.*—Pale yellow-green, nettle-like foliage, with a large chocolate-brown blotch, surrounded with numerous smaller ones, at the base and in the centre of each leaf. This plant forms a nice bush when properly treated. The flowers in spikes, small, bluish purple and white.

C. Blumei, var. *pectinatus.*—Differs from the above principally in the form of the leaf, which is somewhat narrower and more pointed, deeply cut with numerous irregular teeth; the chocolate blotches are also smaller. Both should be in every collection.

Croton discolor.—A stove shrub, of free habit, bearing laurel-like leaves, bright, clear green on the upper surface, and bright crimson beneath.

C. longifolium variegatum.—Somewhat similar to the preceding, but with bright yellow and less red colours, and the foliage more pointed.

C. pictum.—Habit very compact. Leaves dark green, interspersed with large blotches of yellow and red, forming a beautiful object.

Dieffenbachia variegata.—Foliage a good green, with a broad white stripe up the centre of each leaf.

Dracæna elliptica, var. *maculata.*—An ornamental stove shrub, or small tree, the leaves dark green, covered with pale round spots. The flowers not very attractive.

D. ferrea.—The leaves of this species are destitute of stripes or mottlings, but are very showy, being dark crimson-purple.

D. nobilis.—This is the handsomest of the genus, and forms another of the most attractive plants possessing ornamental foliage. The leaves are fine and broad, dark purple, crimson, and green, exquisitely feathered and intermixed.

D. terminalis.—Another very desirable species, the foliage being bright crimson, marked with broad bands of scarlet or red; very beautiful.

Echites nutans.—Foliage green, beautifully veined and netted with bright carmine-red.

Elæodendron Indicum.—Up the centre of each leaf is a broad red stripe, the rest being dark green, spotted with pale green or yellow.

E. venosum.—A dwarf shrub, bearing dark green leaves, as in the preceding species, but mottled with intense brown spots.

Gesneria zebrina.—A well-known plant, but on that account by no means to be omitted from my list; the foliage is ample, broad, and spreading, of a rich green, striped with intense velvety black markings or blotches. The flowers also are very handsome.

Gloxinia argyrostigma, var. *splendens.*—Foliage beautifully variegated with white along the veins. Flowers dark blue, with spotted throats.

Gymnostachyon Zeylanicum.—The leaves of this plant have a very singular appearance; the green of the ground-colour is of a dull hue, and along the centre of each is a broad stripe of pale blue, with other pale blue or lead-coloured stripes branching off in a curved direction on each side. The flowers are small, and of no great beauty.

Hoya carnosa, var. *picta.*—Foliage dark, shining green, having a broad yellow belt along the centre of each leaf; a very pretty and distinct variety.

H. carnosa variegata.—Decidedly the handsomest of this tribe for showy leaves, which are green towards the inside, margined with a broad belt of cream colour or straw-yellow, and the young leaves edged and tipped with pink. The flowers are rosy lilac, and flower-stalks pink.

Justicia zebrina.—Leaves velvety green, shaded with purple, and the veins rosy red.

(*To be continued.*)

CHRYSANTHEMUMS.

BY G.

SOW any time in March, April, or May, in pans or boxes, but the earlier the better, and place them in a hotbed, or the stove to start them. As soon as they are large enough to handle, prick them out round the edge of a forty-eight-sized pot (four inch), about five in a pot, and keep them in moderate warmth till they are established again, when they may be removed to the greenhouse or cold frame. The soil in which they are pricked out should be one-third well-rotted dung from a hotbed, one-third loam from rotted turf, and one-third peat, rubbed through a coarse sieve. Here they must have all the air you can give them on mild days, and occasional watering, as the fibres down the side of the pot soon dry, but they must not be watered until the surface is dry. When those in the cold frame are large enough to touch each other, put them in three-inch pots singly, and return them to the frame; water them well, and shut them up close the next twenty-four hours, properly shaded during the heat of the day. When the roots reach the side of the pots, change them to four-inch pots, and when they fill these, change to six inch; they may then stand out of doors in the shade, or, if more convenient, they may be planted in the open ground, the soil being properly made up for them. The object of raising things from seed is to obtain new varieties, but when we have done all we can to save the seed from the best flowers, the great majority of the new ones are worse than the old; and if we have one better in a season, it is fortunate, still we may have many as good as the old ones, and in some particulars different.

The Pompone Chrysanthemum is the favourite now, and as respectable societies are now taking up the Chrysanthemum, it will be more universally grown.

Chrysanthemums at this time of the year, and from now till the end of June, are sent about the country in cuttings instead of plants, and the sooner they are had the better, and the larger the plants will grow by a given time.

The striking of the Chrysanthemum is so simple and certain, that there is only the difference of a fortnight or three weeks in the time of possessing a rooted plant. For long distances, I recommend cuttings of Chrysanthemums rather than plants: first, they are one-third the price of plants; secondly, they are much less carriage; and lastly, they are but a few hours on the road to the remotest parts of Ireland and Scotland, when sent by post; whereas, plants get shattered about for many days, and are often long enough to be damaged for want of light, air, and water. Now, then, is the time to sow seed for new varieties—imported seed, for it cannot be saved in this country one season in a score; and although we must put up with the seed they send us, I have seen some good flowers raised from it. The Pompone is saved distinct from the show or large kinds, and the advantage of raising seedlings is, that they are useful as garden ornaments under any circumstances, while there may be found amongst them some worth propagating.

NOTES ON NEW AND SELECT PLANTS.

ANGRÆCUM SESQUIPEDALE. Nat. Ord. *Orchidaceæ.*—An extraordinary plant, from Madagascar, the largest-flowered Orchid at present known. Dupetit Thouars, in his "History of the Plants of Madagascar and the Mauritius," published in 1822, made mention of it under the above name, and informed us that it inhabits the former island only; that its flowers were very large and white. Since this time the introduction of the plant has been ardently longed for, and we are happy to say the Rev. Mr. Ellis, the well-known missionary, has succeeded in gratifying the horticultural world with three living specimens of this noble plant, one of which has bloomed magnificently at Hoddesdon, during the renewed absence of that gentleman from England. Mr. Ellis states, in a letter to Dr. Lindley, "In regard to the *Angræcum sesquipedale*, I did not see it in the higher and cooler regions of Madagascar, but only in the lower and hotter districts, and there by no means so abundant as the *A. superbum*, which is a splendid-growing Orchid. The *A. sesquipedale* grows generally on the straggling trees along the edges of the forest, or in parts where the trees are only thinly spread over the country. It seemed to grow most frequently on the driest parts of the trunks and branches of thinly-leaved trees, and though occasionally, yet but seldom seen near the ground. The leaves were neither numerous nor large, and in its native state the plant most frequently presented a starved appearance and straggling habit. In this state the flowers were abundant, and deeper in creamy colour, than when growing in the shade. The roots are not matted and succulent, but few in number, long, and wiry, frequently running down the outside of the tree on which it grew, twelve or eighteen feet or more. The flowers last a long time, and are objects of great beauty. The plant at Hoddesdon grows and forms a stem about eighteen inches high, covered with long, leathery leaves, and from the axils of the uppermost appear short, stiff flower-stalks, each bearing three flowers, of nearly *seven inches across*, and furnished with a tail-like spur, about *fourteen* inches long. When the blossoms first open they are tinged with green, except the lip, which is pure white; after a time the green disappears, and the whole resembles white wax. (*Gard. Chron.*, 194.)

50. SYMPHORICARPUS MICROPHYLLUS. Syn. *S. montanus*. Nat. Ord. *Caprifoliaceæ.*—An interesting dwarf, bushy species of Snowberry, from hilly districts of Mexico, whence it was introduced by Mr. Barclay, of Bury Hill, through M. Cervantes, of Mexico. The plant is perfectly hardy, flowering through the greater part of the summer, and bearing in autumn a large quantity of pretty little pink or blush-coloured berries. The blossoms are small, pale rose colour, drooping, and much concealed by the leaves, which are ovate, glaucous beneath, and thickly placed. (*Bot. Mag.*, 4975.)

51. CAMELLIA RETICULATA, FLORE PLENO. Nat. Ord. *Ternstræmiaceæ.*—*Camellia reticulata*, presumed to be a native of China, appears to have been unknown in Europe till about 1820, and flowered in this country for the first time in 1826. The double-flowered variety here described by Sir William Hooker was forwarded to Messrs. Standish and Noble by Mr. Fortune, and though not strictly "double," the flowers have twice as many petals as the ordinary *reticulata*, of a brighter rosy red, firmer texture, and more regularly disposed. They are of a large size, measuring in some cases near six inches across. The foliage is very distinct from that of *C. Japonica*, being strongly marked with network, and of fine size. (*Bot. Mag.*, 4976.)

52. CIRRHOPETALUM MEDUSÆ. Nat Ord. *Orchideæ.*—A strange and curious-looking Orchid from Singapore, whence it was introduced some years ago by Messrs. Loddige. The flowers are small, and closely crowded on a short spike, while the sepals, being very long and narrow, give them the appearance of a head of dishevelled hair, which has induced Dr. Lindley to give it the above name, in allusion to the head of Medusa. The spikes are yellowish green, and the flowers pale sulphur, spotted with minute pink dots, at the base of the sepals and petals. It blossoms in our stoves in winter. (*Bot. Mag.*, 4977.)

53. SONERILA ELEGANS. Nat. Ord. *Melastomaceæ.*—From the Neilgherry Hills; introduced by Messrs. Veitch, of Exeter and Chelsea, in whose stove it has recently flowered for the first time. It grows about a foot high, bearing pretty rose-coloured blossoms, and fine foliage; the former consist of three petals, and measure about an inch and a quarter across. The stamens, three in number, are very prominent, bright yellow, situated on deep red filaments, as is also the style; the leaves are from four to five inches in length, ovate, marked with ribs or longitudinal nerves, the upper side bright green, and reddish purple beneath, where the nerves are prominent;

the leaf-stalks generally are brown or dull purple. No doubt this will prove a desirable acquisition to the stove. (*Bot. Mag.*, 4978.)

54. Costus Afer. Nat. Ord. *Scitamineæ.*—A reedy plant, introduced originally by Mr. George Don to the gardens of the Horticultural Society, but, till recently, lost to our collections. In March, 1855, living plants were procured by Captain Selwyn, and are now in the collection at Kew. The Hon. W. Fox Strangways states, "This plant comes from the Isles de Los, sixty miles to the north of Sierra Leone, on the west coast of Africa. It is valued by the natives as a specific in some disorders." The flowers, which are white, tinged with yellow, are produced on stems, two or more feet high, and measure rather more than an inch across the tubular corolla; the leaves are dark glossy green, eight or nine inches long, and nearly half as much across, narrowly acuminate; the apex of the stems has a small crown of leaves. The plant blossoms in the stove in September, after which the herbaceous stems die down till the following spring. (*Bot. Mag.*, 4979.)

55. Hoya grandiflora. Nat. Ord. *Asclepiadaceæ.*—A new and striking species, lately received from the Island of Nœsa Kambangan, to the south of Java, by Messrs. Rollisson, to whom it was forwarded by their collector, Mr. John Henshall. The flowers equal in size those of *H. imperialis*, but are of a pure white; the foliage is elliptic, and rather downy.

56. Huntleya cerina. Nat. Ord. *Orchideæ.*—Flowers of a delicate sulphur-yellow, and very showy. This is by far the handsomest of the genus. From St. Paul's, in South America.

57. Dendrobium cymbidioides. Nat. Ord. *Orchideæ.* Introduced by Messrs. Rollisson, through Mr. Henshall, who discovered it growing on one of the small hills adjacent to Mount Megamendung, in the western district of Java. The flowers are lemon coloured, freely produced in short spikes.

58. Dendrobium Amboinense. Nat. Ord. *Orchideæ.*—This pretty close-flowering Orchid owes its introduction to the same gentleman as the preceding species. It inhabits the northern valleys of Amboyna. The blossoms are of a bright rosy red colour, tipped with pale green, and produced up the stem in clusters.

59. Erica physodes virescens. Nat. Ord. *Ericaceæ.*—A new and quite distinct species from the Cape of Good Hope, of close habit. The flowers are longer than those of the old and well-known *E. physodes*, which they resemble in form, but instead of being white, as they are in that plant, are a clear, semi-transparent green colour. This species should be in every collection.

60. Fagræa morindæfolia. Nat. Ord. *Loganiaceæ.*—The flowers of this strikingly handsome new stove plant are trumpet-shaped, of a delicate rosy blush, with a pure white mouth, produced in clusters on long terminal spikes. The foliage also is handsome, resembling that of the Magnolia. We are indebted to Messrs. Rollisson for the introduction of this plant, whose collector detected it in the district

of Indramaya, in the western part of the island of Java. Worthy of a place in every stove.

61. **Fagræa peregrina.** Nat. Ord. *Loganiaceæ.*—From the same locality as the above. The flowers are, however, white; in other respects it resembles the foregoing.

62. **Vaccinium erythrinum.** Nat. Ord. *Vaccinaceæ.* A dense, bushy, evergreen species, with dark green neat foliage, ovate, and thickly set. The flowers are produced in bunches from the axils of the leaves, and are of a fine bright crimson colour. Being found at a height of ten thousand feet above the level of the sea, there can be but little doubt of its being quite hardy with us.

63. **Mandirola lanata.** Nat. Ord. *Gesneriaceæ.* In this species the leaves are curiously clothed with a soft white down on their under surface, as well as the stems. Their habit also is remarkable, being closely reflexed one upon the other. The flowers are lilac, tinted with purple inside, somewhat like a Foxglove.

64. **Vriesia splendens.** Nat. Ord. *Bromeliaceæ.*—A plant resembling in many respects a *Tillandsia*, but with beautifully variegated foliage. It puts forth a long scarlet spathe, from the coloured bracts of which issue the flowers, of a pure white. This is a handsome addition to an interesting tribe of stove plants.

65. **Isolepis gracilis.** Nat. Ord. *Cyperaceæ.*—An elegant slender-growing Grass, well adapted for growing in fancy baskets, etc. The foliage is long and gracefully drooping; each leaf has a tuft of small flowers at the extremity, giving it a pretty appearance. It requires a stove temperature.

66. **Blandfordia nobilis.** Nat. Ord. *Liliaceæ.*—Well adapted as this is for greenhouse culture, few persons who have seen it in bloom can fail to admire it; when more generally known, we can readily imagine no greenhouse will be without it. The flowers are liliaceous, bright orange and scarlet, remaining in perfection a long time. The foliage is recurved, and resembles a tuft of grass. In habit it is dwarf, not exceeding twelve or fifteen inches in height, and very free blooming.

67. **Begonia rosacea.** Nat. Ord. *Begoniaceæ.*—The present, along with the next species, was introduced by M. Linden, of Brussels, through that indefatigable collector, M. Triana. It is a tuberous-rooted kind, sending up fine, rather downy, radical leaves, and bearing large blossoms, of a pale rose colour. Altogether, this variety promises to become a great favourite. It grows in the western Cordilleras of Columbia.

68. **Begonia multifolia.** Nat. Ord. *Begoniaceæ.*—Another charming species, covered with a profusion of small, pure white blossoms. It was originally discovered by MM. Humboldt and Bonpland, on the mountains of Quindiu, and has been sent from the same locality by M. Triana.

69. **Gesneria cinnabarina.** Nat. Ord. *Gesneriaceæ.*—M. Linden purposes sending out this new plant early in the autumn, and, from

what we have learned of it, it will no doubt be a great acquisition to a tribe which already numbers so many strikingly beautiful plants. The flowers are described as of a brilliant scarlet, exceeding even vermilion in its intensity, while the foliage also is very attractive, not only on account of its great size, but also for its rich velvety upper side, and the glowing crimson under surface. It flowers from November to April. Introduced from the south of Mexico in June last year.

NEW AND SELECT GARDEN HYBRIDS.

BEGONIA OPULIFLORA MINIATA (Rollisson).—This remarkable hybrid was obtained by crossing *B. opulifolia* and *B. miniata;* the result has been the present variety, in which the bright-coloured flowers of the latter are borne in umbels like the former.

34. Erica æmula (Rollisson).—This is a distinct variety, belonging to the *Massoni* section (in which class are such as have long, tubular flowers); colour bright crimson-red, and of good habit.

35. Erica eximia superba (Rollisson).—Flowers tubular, much larger than those of the parent plant (*E. eximia*), of a bright scarlet; habit very neat, compact and bushy.

36. Erica amabilis (Rollisson).—This is a most abundant bloomer, with large flask-shaped flowers, white, delicately shaded with rose. Very showy and distinct, blossoming from July to the commencement of winter.

37. Azalea Indica, Empress Eugenie.—The colour of this variety is a light rose, the upper petals spotted, large size and excellent form. Its habit is compact and it blooms very freely. Has had the first-class certificate of the Horticultural Society, and a medal.

38. Azalea Indica, Imperatrice Josephine.—Clear cherry colour, upper petals spotted, good form, of free growth and excellent habit.

39. Azalea Hartnelli.—Messrs. Rollisson inform us that the present has proved a very hardy variety. It was selected as the best among some hundreds of seedlings, and may be considered worthy a place in every garden. The flowers are in large trusses, of good size, and distinct from any existing varieties. The top petal is yellow, the others light orange, shaded with scarlet, and each spotted with brown towards the base.

40. Rhododendron pavonium (Rollisson).—A fine and profuse-flowering variety, coming into bloom late. The flowers are deep blush colour, with rich spots on the upper petals, similar to those of a Pelargonium.

41. Rhododendron Stamfordianum (Rollisson).—Perfectly

hardy, late, and a profuse-blooming variety. It is highly attractive, from the bright crimson-purple and intense black markings on its petals. The foliage also is fine.

42. RHODODENDRON PELARGONIÆFLORUM (Van Houtte).—A splendid showy hybrid, of excellent habit. The blossoms are pink, shaded with yellow, and most beautifully spotted.

* * *

FLORICULTURAL OPERATIONS FOR MAY.

IN THE FLOWER GARDEN.

GENERAL OPERATIONS.—*Bedding plants*, put out as soon as ever the weather appears favourable. *Beds and borders*, attend to sedulously, keep clean, and fill up vacant places with suitable plants. *Caterpillars, grubs, and other noxious insects*, if not exterminated as much as possible, will come forth in increased numbers, and give much trouble; look to Roses especially. *Cuttings* of several things may be put in at the commencement of the month, in showery weather, as *Double Wallflowers*, *Pansies*, and *China Roses*; the latter require a shady situation. *Edgings*, keep neat, and repair *Box* where deficient. *Grass and Lawns*, as last month. *Gravel*, roll frequently. *Soil*, the surface of beds and borders must be frequently stirred with the hoe, this not only helps to keep down weeds, but is very beneficial to the plants. *Sticks, pegs, and labels*, for the plants, must be attended to, and the plants tied up as they increase. *Watering*, in dry weather never neglect it; the growth of the plants absolutely requires attention to supply them with food, which they can only receive in a liquid form. *Weeds* will spring up faster than ever, if not prevented.

CULTURAL DEPARTMENT.—*Alpines*, remove all weeds running over the rockwork amongst them; check such as may be spreading too far and intermix with each other. Those in pots should be watered regularly, and delicate sorts sheltered from heavy rains. *Annuals* may be sown for a succession; thin out and transplant. *Antirrhinums*, turn out any desirable varieties, and prick out seedlings. *Biennials and Perennials*, may be sown for next year's bloom. *Bulbs*, the situation of such as have died down in the border should be marked with sticks or labels; take up and divide those that require it. *Carnations and Picotees*, stick them, if not previously done; top-dress, and keep watered. *Seedlings*, towards the end of the month, when about three inches high, transplant them into large pots or boxes, filled with rich turf-mould or loam, placing them five inches apart; give them a southern aspect and occasional waterings, but take care to avoid wetting the foliage. *Cobæa scandens* and *Calampelis scaber*, turn out about the beginning of the month in a border of loam, rotten dung, and a little sand. They should be trained against a trellis, which they will cover to a great extent. *Dahlias*, the plants in forty-eight-sized pots have ample room for continued growth, so that there is not any necessity for risking them in the open bed at an earlier period than the last week in May, when danger from frost is over. The plants will then be strong, stiff, and robust; they must be turned out carefully, and the outside of the ball of roots rubbed carefully by the hand, to loosen the exterior roots. The holes for receiving them must be made much larger than the ball of roots, and some good compost, composed of manure, loam, and bone-dust, be mixed with the soil thrown out; after putting in the plant fill up firmly, and water, to settle the soil and start the plants. It will be necessary, should the weather prove dry, to water them copiously in the evening; soft water is far better than any other. *Gladioluses*, when they are about a foot high, should be carefully staked, and watered occasionally. *Hollyhocks*, towards the end of the month, lay a good sprinkling of manure over the roots, and two or three feet around the plants, to keep the soil cool and duly moist. Attend to thinning the shoots, and water well, occasionally with liquid manure. *Lobelias, herbaceous*, plant out in beds, in rich soil; they will bloom in July, and continue throughout the summer. *Nicotiana*, plant out also, in leaf-mould and well-rotted cow-dung; they will flower handsomely at she same time as the preceding. *Pansies*, give due attention to watering. Plant out seedlings sown in March. *Pinks*, commence watering with liquid manure once a week, taking care not to pour it over the foliage. *Polyanthuses*, as they go out of bloom, take up, part, and plant in a shady situation. Gather seed, and sow in pots or boxes. Prepare compost for potting in. *Ranunculuses*, look over the beds, for they are liable to destructive insects, and protect the plants, when in flower, from the sun and rain, which injure their colour. During bloom water every night, but cease to water when on the decline. *Roses*, cuttings put in last September will be ready either to pot off, or plant out in beds; after planting, shade from sun and cold drying winds. Stocks must be looked to, and all superfluous buds removed, leaving only three or four at the top to form the head on which to bud. Keep down green fly, *Stocks, Queen*, sow the beginning of this month; it should be done on a border of light sandy soil with an eastern aspect, never south, as this would be too hot for them. Sow very thinly in shallow drills, six inches apart; water in the evenings. *Tulips*, when in flower, shade with canvas during rain, and from nine till four o'clock in case of sun. By this means the duration of blooming is prolonged. As soon as the bloom is over, the seed-vessels should be cut off. *Verbenas*, harden off stock for bedding, and towards the middle of the month plant out; fumigate before this is done. *Wallflowers*, sow for September bloom.

IN THE GREENHOUSE, COLD-PIT, AND FRAME.

General Operations.—*Air*, admit when the weather permits, and, towards the end of the month, all night slightly, increasing by degrees. *Cuttings* will now root readily in bottom heat. *Seedlings* should be pricked off before they get weakly. *Shade* plants in flower. *Shift* such plants requiring it, as soon as ever the pots are full of roots. *Stop*, as directed last month. *Surface soil* in pots must be frequently stirred, the plants turned round, and kept at a proper distance from each other, to promote health and vigour. *Water* will be plentifully required now by most plants in a growing state. Keep the plants, pots, and entire erection neat and clean.

Cultural Department in the Cold-pit and Frame.—*Annuals, tender*, may still be sown for succession. *Auriculas*, the cooler they are kept, the longer they remain in bloom. Unless seed is wanted, cut down the flower-stems as soon as the bloom is over. Keep them clear of green fly. *Balsams and Cockscombs*, sow, or pot; the former require more air and less heat than the latter. *Bouvardias*, air may be freely admitted, and in a week plant out. *Chrysanthemums*, last month's directions may still be carried out. *Mignonette, tree*, sow in small pots; when the plants make their appearance, select the strongest one in each pot, pull up and throw away the rest. *Pentstemon speciosum*, pot into sixty-sized pots, in a compost of loam and well-rotted cow-dung. They should be placed in a close frame for a few days, till recovered from potting, then give a free admission of air to harden off the plants. *Polyanthus tuberosa*, plant for autumn bloom. *Primroses, Chinese*, shift the plants as they fill the pots with roots, and remove them to a lower temperature, to inure them to the open air. *Salvias*, propagate for blooming in autumn and winter; seed of *S. patens* may be sown. *Stocks, and other half-hardy plants* for succession, may now be sown. *Verbenas*, harden off for bedding, and plant out nine inches apart.

Cultural Department in the Greenhouse.—*Achimenes* may be brought in. *Azaleas*, attend to stopping and training young plants; when specimen plants go out of bloom, nip off the seed-vessels, and shift such as require it. *Calceolarias*, refer to last month's treatment. *Camellias*, give occasional supplies of liquid manure, and keep a tolerably high temperature, to promote the formation of flower-buds. *Cinerarias*, seed may be saved from the best, and some of it sown at once, and the plants will bloom about the middle of winter. Set the plants out of doors when bloom is over. *Ericas, Epacrises*, etc., attend to watering. *Fuchsias*, repot for larger specimens; attend to last month's operations. *Lilium lancifolium* may be introduced; keep well watered, never allowing them to flag. A sprinkle over-head is of great advantage. *Pelargoniums*, the instructions given last month still apply. Shade those which, being early. have come into bloom. Bees must be excluded the house when Pelargoniums are in flower, if you wish to prolong the bloom. *Roses in pots*, keep well watered.

IN THE STOVE.

General Operations.—*Air*, admit to keep the temperature down to 70° by day, and 60° at night. The *atmosphere* must be kept moist, by sprinkling the walks daily. *Baskets, vases*, etc., may be filled with suitable plants, see last month's directions. *Cuttings*, take off, and prick in sand in bottom heat. *Insects*, use every means to keep them down. *Potting*, continue to repot young plants, to bring them on. *Syringe*, use freely, but avoid those plants which are in bloom. *Watering* requires due attention. *Weeds*, let none be seen; keep everything neat and tidy. *Winter-flowering plants*, cut them down, repot, and start them into growth.

Cultural Department.—*Achimenes*, give water freely to those advanced in growth, and support the weak ones with sticks; pot. *Amaryllis*, water freely those coming into bloom; others going out place in a close pit for a time to ripen the bulbs. *Gardenias*, give water more sparingly, and place those out of flower in a cold-pit. *Gesnerias, Gloxinias*, etc., syringe daily this class of plants; repot. *Ixoras*, see last month's directions; young plants may be placed in bottom heat to forward them. *Justicias*, cut down, repot, and place in heat to start them. *Lycopods*, divide, and repot. *Oleanders* will flower more freely if placed in pans of water. *Orchids and Succulents*, those growing freely may be well watered. *Orchids* for exhibition should have their flower-stems tied out, to make a handsome appearance. Those in bloom should have the blossoms kept dry, and may be removed to a lower temperature with benefit.

QUESTIONS, ANSWERS, AND REMARKS.

Hovea Celsii and Illicifolia.—I shall feel much obliged if any of your correspondents will give me particulars of the best method of treating these plants.—*A Subscriber, Teston.*

Horticultural Society, *April 7th.*—A meeting was held this day, J. Blandy, Esq., in the chair, when twenty-four new members were elected, and an interesting paper read on heating horticultural erections. The display of plants exhibited was unusually fine, comprising Camellias, Roses, Azaleas, Cinerarias, Orchids, and other flowering plants, together with some fine fruits. Of Roses, were blooms of General Jacqueminot, bright scarlet-crimson; Gloire de Dijon, yellow and salmon; Vicomtesse Decazes, yellow; Mrs. Siddons, yellow; Devoniensis, delicate sulphur and white; a bouquet of the pale yellow Rose ochroleuca, from Mr. Snow, gardener to Earl De Grey, was much admired, and was stated to have been gathered from a plant in a pot bearing upwards of forty blooms. A new climbing Tea-scented Rose of a deep yellow colour, from South Carolina; it had upwards of forty blooms on it, large and very double, and promises, from all we have heard of it, to occupy the place of the old, but difficult to flower, double yellow variety; it is named Isabella Gray. Mr. Turner sent some fine and beautifully bloomed specimens of Cinerarias, comprising Lady Camoys, Delight, Optima, Emperor of the French, Sir C. Napier, Earl of Clarendon, Ruby, and Lord Palmerston; also the following excellent seedlings: Mrs. Hoyle, fine form, crimson-purple edge; Baroness de Rothschild, fine shape; Regalia, resembling Ruby, but better; Lady Augusta Vaughan, large, and remarkably showy; Prince Albert, crimson-purple, good form and habit; Prince of Wales, good shape. Another seedling from Mr. Bones, of Woodford, called delicata, was also shown. Of Orchids, there were some very fine specimens, the most remarkable being a large and well-grown Dendrobium densiflorum, nearly three feet across, and covered with large bunches of its most attractive yellow blossoms; Mr. Lawrence, gardener to the Bishop of Winchester; the exhibitor was awarded a first-class prize for it. Messrs. Veitch exhibited a beautiful collection of this lovely tribe, as did also Messrs. Jackson, of the Kingston Nursery. Mr. Parker, of

Hornsey, forwarded a handsome new Cypripedium, covered with long hairs, and Mr. Warner, a scarce Dendrobium, named lituiflorum, together with Oncidium bifolium, a yellow species. Messrs. Henderson, of Pine Apple Place, exhibited a good collection of early Tulips, Hyacinths, and miscellaneous plants. A rare and very attractive bulbous plant from Messrs. Veitch, named Griffinia Liboniana, excited considerable interest from the brilliant blue tips of its petals, as well as its rarity. From the same gentleman came also two Epacrises, a white Ixora, and the handsome Acacia Drummondii. Cut flowers of Hexacentris Mysorensis and Canna Iridiflora were shown, from Mr. Snow, and collections of miscellaneous greenhouse plants from Messrs. Lee, of Hammersmith, and Messrs. Cutbush, of Barnet. Lady Dorothy Neville sent some exquisite specimens of anatomized leaves, beautifully prepared and decorated with coloured designs. Cones of the new Larch from China, Abies Kæmpferi, were exhibited, and a paper concerning them, from Mr. Fortune, was read, who states this tree forms a very picturesque object in Chinese landscapes, from the lively green of its leaves and cones in spring and summer, as well as the decided yellow tints they wear in the autumn; with the Celestial nation it goes by the name of the Golden Pine. The Society's garden produced a number of subjects of exhibition, including specimens of the double white Chinese Peach, Forsythia viridissima, a red hexangular Camellia, and other good things.

ACROCLINIUM ROSEUM.—This beautiful annual should be sown in heat, and, when large enough, pricked out round the edges of four-inch pots, and grown in the greenhouse till strong enough to pot singly in three-inch pots of light rich soil. When these fill with roots, let them be exchanged to four inch and onward, till they are in six-inch pots, in which they will form very fine objects. Some, however, may be advantageously planted out in the borders or in beds, and if this be deferred till June you will be more likely to save seed, for it will give two chances instead of one. Like *Rhodanthe Manglesii*, it may be sown in March, April, or May, or in all three months, for a succession, or it may be sown now in the open air, if you are careful not to leave it uncovered, and avoid sowing it too deep. It is more to avoid this, than through any other reason, that choice things are sown in pans, pots, or boxes; the seed can then be sown and covered exactly as much as we like, and with valuable seeds it is an object to make every one grow. We are indebted to a German grower for these hints as to the culture of this popular annual, and we wish it were more generally the practice than it is to give directions for the culture of all the new seeds sent out.

CALAMPELIS SCABER.—I have successfully propagated this plant for some years as follows. During the month of January, I place an old plant in a vinery or hotbed, so as to induce it to break, and as soon as the shoots are three inches long, take them off, with a small piece of old bark adhering to the cuttings. I place them in light vegetable mould and sand under glasses; they quickly strike root, and will be fit for potting in a month. The best compost consists of loam, well-decomposed manure, and leaf-mould, in equal parts. Thus raised, the plants flower well the first year, while those from seed will not blossom until the second. Seed requires to be sown as soon as ripe, and if placed in the greenhouse, or frame, the young plants will be fit for potting off in April. —*D. B.*

ON RAISING THE CALCEOLARIA FROM SEED.—The pots for sowing in should be filled half full with drainage, over which lay the rough siftings of the soil to be used, and fill up the pots to within an inch of the rim with very fine-sifted rich garden soil and silver sand, in equal proportions. A gentle watering with a fine rose should then be given, and immediately after sow the seed very thinly, not covering it with any soil. Place the pots in a close frame or under a hand-glass in a shady situation; it is much better not to give any artificial heat. Carefully avoid any exposure to the sun, by shading with brown paper or mats; for if the soil becomes dry after the seed has commenced germinating, it is sure destruction to the plants. If the situation is of the proper temperature, water will be very seldom required. As soon as ever the seedlings are strong enough to bear pricking out, prepare pots as for seed, and carefully transplant and place in the same shady situation as before; from these store pots they will soon require to be potted off singly, and will be found to grow very rapidly. During winter, the plants will succeed best on the shelves near the glass in the greenhouse; and if kept freely shifted until the flower-stalks appear, they will make fine blooming specimens.

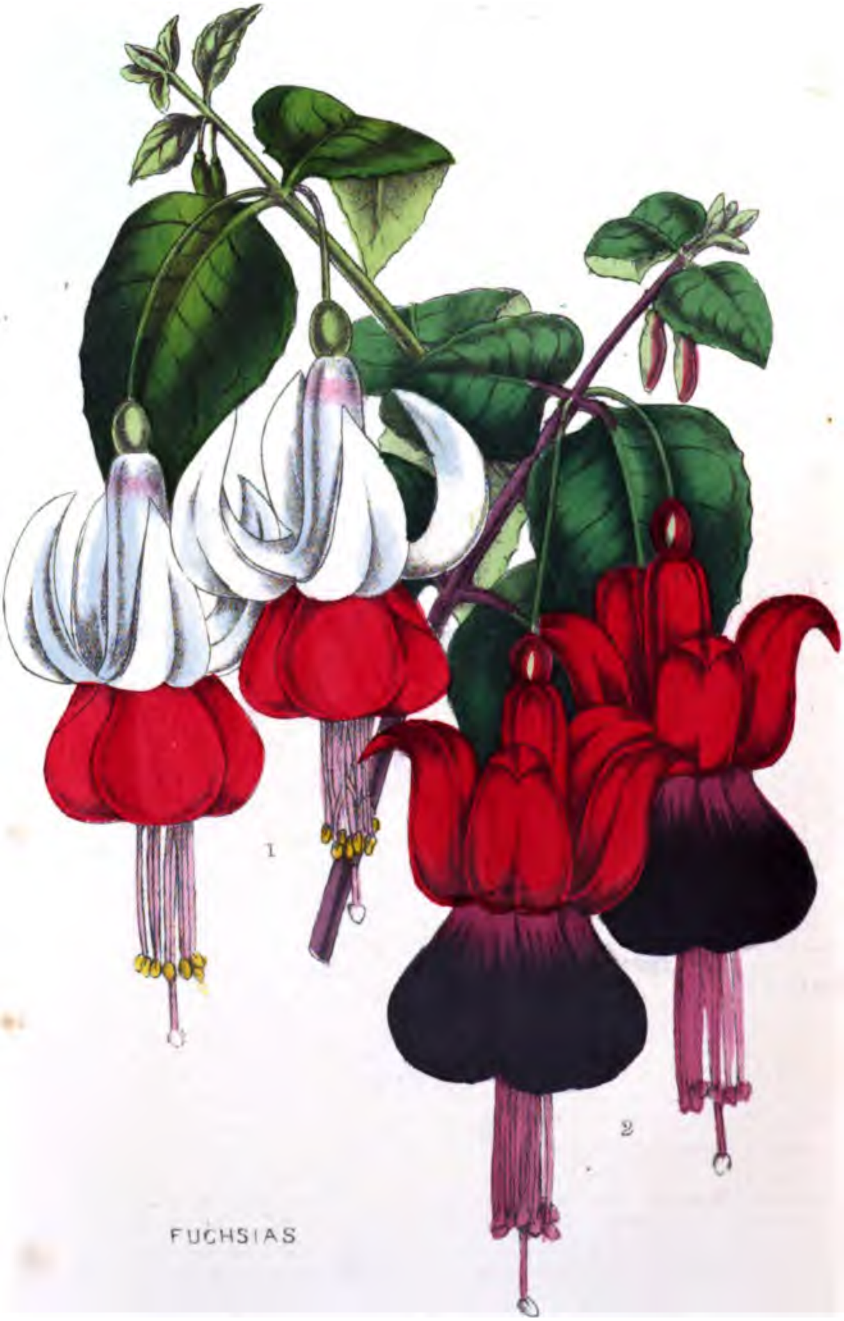
Never omit fumigating immediately the green fly appears, as they are sooner affected by this pest than any other plant. One of the most frequent causes of this insect is, allowing the plant to become pot-bound, therefore attend to repotting.—*L. Davis.*

Chrysanthemums.—The following descriptive list of a few of the finest Chrysanthemums may prove of service to the amateur; the sorts enumerated are the best of their class, and may be depended on. *Twenty-four Show Chrysanthemums.*—Alfred Salter, a fine large flower, nicely incurved, rosy lilac. Annie Salter, one of the finest globe yellows. Aregina, large, and well incurved, amaranth-maroon. Albin Gonderean, fine, early, and well incurved, bright plum-crimson. Anaxo, large, and well formed, early bloomer, orange-red. Beauty, fine show flower, incurved, peach-blush. Christophe Colomb, crimson-violet, incurved. Defiance, very pure white, a fine incurved flower. Dupont de l'Eure, carmine-orange, very finely incurved, a constant flower. Elizabeth, clear white, incurved. Formosum, light yellow or primrose, good form, incurved, early. Golden Cluster, fine yellow. Hermine, blush, with carmine-purple tips, early, beautifully incurved, extra. Irene, blush-white, a nice flower. Leon Lequay, lilac-purple, incurved, very fine. Le Prophète, clear yellow, fine form. Lycias, orange-red, incurved, fine form, but a late bloomer. Madame Furtado, incurved, white and rose, a nice flower. Madame Lebois, creamy pink, a fine incurved flower. Madame Andry, rosy blush and lemon colour, incurved, and very fine. Plutus, bright deep yellow, incurved, extra. Queen of England, blush-white, incurved, very fine, early. Rosa Mystica, rosy peach, fine. Themis, clear rose colour, incurved, extra. *Twelve Pompone or Minima Chrysanthemums.* Aigle d'Or, light yellow, neat form. Apollon, fine clear yellow, full flower, but late bloomer. Aurore Boréale, deep orange, extra. Bijou d'Horticulture, fine creamy white, good. Brilliant, orange-red, free, good early flower. Cedo Nulli, a very neat white, early. Duraflet, rosy lilac, very double, extra. Eliza, amber colour, very dwarf and double. Indiana, deep rosy red, full flower, early. Riquiqui, deep purple-crimson or plum colour, very distinct, extra. Sainte Thais, cinnamon-buff, with orange centre, full flower and neat form, early. Zebra, lilac mottled, with light centre, distinct and fine.—*D. K.*

To destroy Worms on Grass Lawns, etc.—Of the many methods which have been recommended for destroying worms, I have found corrosive sublimate the most efficacious. By means of it I cleared a piece of grass from which it seemed almost impossible to eradicate the worms, the surface of it being always covered with casts, and looked most untidy; but for eighteen months after this was applied, scarcely a single cast was to be seen. I use the solution of the corrosive sublimate, of the strength of one ounce to forty gallons of water, having dissolved the sublimate first in a little hot water, and thoroughly mixed it. The requisite quantity of each being prepared, the whole should be well stirred together, and commencing at one end of the lawn with the watering-pot, without a rose, let the surface be entirely flooded; if any part of the ground is missed, the grass will soon be as bad as ever with the worm-casts. Directly after the solution has been applied the worms will make their appearance, which I have always picked up. The dose may be made sufficiently strong to kill them on the surface, or even in the ground; but this is attended with danger to the grass, particularly on light soils. I therefore consider picking them up the best. If possible, the ground should be gone over a second time, after an interval of three or four days. Attention should also be paid to the state of the ground, which should neither be soaked with rain nor parched up with drought, but in a middle state. Great care is at all times necessary in using this deadly poison. It is also useful in destroying slugs, etc.—*W. Dawson.*

Parchment Labels.—To restore the faded names which are often to be found on parchment labels, and which may be apparently gone for ever, nothing more is necessary, when they have been written with *ink*, than to rub over them a little tincture of galls, with a small brush, when the blackness will be restored, and they may be easily read. This may be useful to some among your many readers.—*Tyro.*

Heaths for Edgings.—As remarked by one of your correspondents, no one can form any idea, unless they have seen it, of the pleasing effect produced by the adaptation of that truly beautiful British plant, *Erica vulgaris*, to the formation of edgings. The edging should be made from eight inches to a foot in width, and occasionally clipped flat; the plants will then flower profusely.—*J. Towers, Aldon.*



FUCHSIAS

The Floricultural Cabinet.

JUNE, 1857.

ILLUSTRATIONS.

FUCHSIAS.

No. 1. Fair Oriana. No. 2. Etoile du Nord.

WE are indebted to Messrs. E. G. Henderson and Son for the opportunity of figuring the two above-named new varieties, both raised by Mr. Banks, who has been so successful in hybridizing the Fuchsias, and of whom the above respectable firm purchased the stock, along with that of others, all of great merit. Fair Oriana is an excellently formed flower of the light class, an abundant bloomer, very dwarf and spreading in its habit, the light scarlet corolla contrasting beautifully with the pure white sepals. This will, no doubt, prove a favourite. Etoile du Nord is an erect-growing variety, more so, indeed, than many of Mr. Banks's seedlings; the rich deep plum colour of its corolla we have seldom seen exceeded, the petals are well exposed by the sepals recurving upwards, and are of good size and substance.

STOCKS AND ASTERS.

BY G., MIDDLESEX.

THESE two annuals are grown by everybody, and there are not two better qualified to gratify the cultivator; but they must get good seed, for neither of them are worth the room they occupy if they are second rate. It has been said, by very old and experienced gardeners, that the manner in which they are cultivated has a good deal to do with the doubleness of Stocks, and that if they are kept growing free from the time they are up to the period of bloom, the greater part will come single. I cannot say I have ever tried this, because my very early lessons were to starve them until the time of planting out, and to keep them very dry; in fact, I have always kept them without water, after they had six leaves, until the lower ones turned colour, and then planted them in good rich soil. I have always been fortunate; but in the saving of seed I have been always careful to cut off all the growth and bloom as soon as a few bottom pods have begun to swell, and thus to drive all the vigour of the plant into those few pods. I have a strong notion that this is the only way to secure a goodly proportion of double ones. But there are several points worth attending to in the management of Stocks and Asters, and none more important than in the mode of planting out. Asters, if planted in loose ground, just as it is dug up, will generally curl on the leaf, and Stocks rarely do well; the ground should be trodden down hard all over the bed, and then it may be raked smooth and lined out, Asters a foot apart every way, Stocks nine inches; and in planting these out, an iron-shod dibble must be used, and the earth closed firmly upon the root, the dibble leaving a hole on the side, so that in watering it is filled. The plants make but little move the first few days, but afterwards grow rapidly until they come into flower, and then it is that, if we want to save seed, we must sacrifice in some degree the appearance of the Asters, because the crown blooms are the only ones to depend on, and the side ones should be all cut off; besides, not one of these crown blooms should be saved that is not full to the centre. The entire value depends on the doubleness, so that any deficiency in the centre is fatal. With regard to the Stocks, the loss of the single flowers is nothing; so that directly a few of the bottom pods are set, cut off all the upper part of the spikes and remove all the side growth, the seed will be much finer, and, so far as my experience goes, much better. In growing intermediate Stocks for potting, sow in July, in the open ground, and when they have four or six leaves, prick them out in four-inch pots, about five in a pot, of clean loam, close to the edge; when done, give them one watering and put them in a cold frame, with a very dry, hard bottom, that the superfluous water may run away when they are watered; but keep them without water till they exhibit a real want of it, then wet the soil well all through, and let them have no more till they flag again. They will not grow much in the winter, but they will show their bloom early in the spring. As soon as any one in a pot of five shows flower-buds you can see whether it be single or double. If a double one shows, turn out the ball of earth whole and squeeze it out, without disturbing the others, return the ball to the pot, and fill up the hole with soil. In this way you may, from a quantity, pick out a few double ones every three or four days; let those double ones be potted singly in four-inch pots of good rich soil, say two-thirds loam from rotted turves, and one-third decomposed dung from an old bed. Put them in a cold frame by themselves; let them have abundant air and free watering, for they will grow rapidly, and want it; they will attain a good size before blooming, and quite fill their pots. Ten-week Stocks for early blooming must be saved just the same; if you want all double in pots or in a bed, you must let them be starved till they show their buds, when they may be potted singly till the time of turning, simply regulating the time of sowing according to the period you want them to bloom. Mr. Hopwood, of Twickenham, who was famed for his double Stocks, used to insist that if they were sown when the moon was decreasing, they would all come single; and if sown when the moon was increasing, they would come double, and the old gentleman would never be persuaded to the contrary. But although every cultivator acknowledges that there is a great mystery about Stocks, few either believe that the moon has any influence on them, and perhaps still fewer think it worth while to try the experiment. This year the intermediate Stocks, in many localities, come so generally single that they may be said to be a total failure; not half a dozen double in a whole light, certainly not one in ten. The whole time therefore bestowed on potting singly was lost, besides their taking up considerably more room. I should like to hear whether this fatality is general. I have it from half a dozen noted growers that they never remember such a general failure.

ON THE PROPERTIES OF THE AURICULA.

BY AN EXPERIENCED CULTIVATOR.

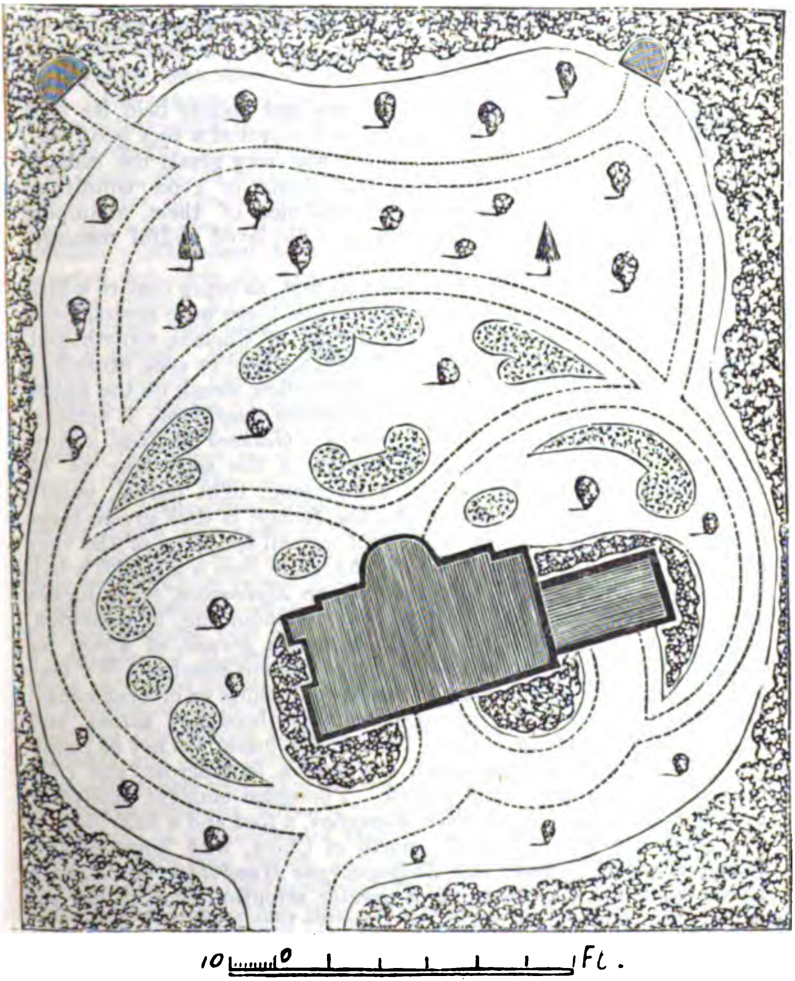
AS there appears to be a little diversity of sentiment among growers of favourite florist's flowers in different parts of the country, it would be well to settle this, by fixing a systematic plan of coming to a just conclusion as to the merits of the various flowers in question, by laying down, by mutual consent and agreement, the most essential properties of first-rate blooms of each class. Having given my almost undivided attention to the Auricula for many years, I may be permitted perhaps to state what I, in common with several good judges, consider should constitute the properties of *a good* Auricula. The first essential property is, doubtless, form; for however pleasing or agreeable the colour of any florist's flower may be, without excellence in this respect, it must be regarded as worthless; beauty and correctness of form and outline are what the florist aims at, and it is this which principally distinguishes a hybrid of universal acceptance from a species; and although the botanist, strictly so called, may consider such flowers as monsters, yet to the eye of taste it is pleasing to have a chaste and symmetrical form combined with other excellences, as may be seen in a choice florist's flower; it is the endeavour to excel in this particular to which the energies of the true florist are directed, and which has given rise to the many beautiful hybrids of our time. In this there appears to be a continual progress, not that it is even probable that the standard laid down by good judges will ever be altogether attained, but the approach to this mark is visible from year to year. In the Auricula, the shape of the corolla and proportion of the tube should first be considered, as, however excellent in other respects, a notched or undulated margin is a drawback, which no brilliancy or clearness of colours can atone for; the same may be said of a disposition to cup, instead of the petals laying even and flat, without which the chief beauties of the otherwise fine bloom are lost. In some flowers we find a tendency to crack in the paste towards the tube; in others, the anthers shrink, leaving a hollow centre; in others, again, the tube may not be perfectly round, —all which defects must be considered serious drawbacks to the perfection of form; besides which, accidents to blooms, caused by the carelessness of the exhibitor (although by no means lowering the *prestige* of the individual variety, being fortuitous injuries), as bruises and the like, would of course disqualify such blooms for a prize. As to colour, depth and intensity must have the preference, when other points are equal, to that of a dull appearance; the more distinct the margin, the purer the white, and the darker the ground or body colour, the greater will be the merit of the flower, especially where the tints are clearly portrayed. Harmony, or the best distribution of colour, is another point to which I must call attention; on taking into consideration the proportions of colour, a good judge will give preference to those blooms in which the paste, the ground-colour, and the white, grey, or green edge are distributed in the most equal proportions; that is to say, the nearer the distance between the tube and the inner margin of the deep band approximates in measure to the band itself, the finer are the proportions; too great or too little width in this respect destroys the symmetry of the flower. Uniformity in size of the pips is another essential in a good truss of bloom, nothing looking so awkward as different-sized flowers in the same truss, or where some blooms have precedence in flowering over others. In size, medium pips come best in general; although, of course, a large flower must be preferred, where other properties are the same. A strong, upright stem is an additional merit in a fine flower, and an evidence of good management in cultivation. Where plants are exhibited in pots, this can always be seen, but not properly if shown in bottles, as is frequently the midland county practice. The number of pips in a truss varies according to the locality, seven being considered requisite in the neighbourhood of the metropolis; in any case, not less than five should be considered sufficient, unless with seedlings of the first year's bloom, when three pips should be regarded as the smallest admissible number.

Selfs, or those Auriculas with one colour (except the eye), may be judged by the same principles as to form, uniformity, size, etc., although a somewhat larger eye is in this class a desideratum.

In various districts different systems of exhibition are practised. In the south it is usually the custom to show in pairs; in other parts they are exhibited in classes, etc.—all which are matters of taste; yet it is desirable that some uniform practice were adhered to.

DESIGN FOR THE GROUNDS OF A SMALL VILLA RESIDENCE.

BY. T. RUTGER, ESQ.



THE annexed design is intended for a small villa residence, comprising somewhat less than an acre of ground. The trees and shrubs on the lawn should be of the most choice kinds, and the clumps may be disposed of with flowers in masses, or otherwise, as taste may direct. Sites for two covered seats, or for alcoves, may be seen in the corners, at the farther end of the plan.

ROYAL BOTANIC SOCIETY'S EXHIBITION, REGENT'S PARK.

ON the 20th of May, this excellent Society held its first exhibition of this season, and it proved a very good one. The attendance of visitors was very great, the competitors numerous, and the plants in good condition. Under the able superintendence of their estimable curator, Mr. Marnock, the grounds also displayed skilful management and good keeping.

Of *new plants*, which class we mention first, as being that to which a more than ordinary interest always attaches, there were several good things, to which Messrs. Veitch and Son, of Chelsea, contributed. *Rhododendron Veitchi*, an immense flower, as large or even exceeding *R. Edgeworthii*, pure white, with a slight yellow streak on the upper petal, the edges crimped, like those of *Azalea crispiflora;* it appears to be, however, but an indifferent grower. *Gesnera Miellezi*, a most abundant bloomer, producing its flowers in the same way as *G. Donckelaeri*, each two inches and a half long, light purple, mouth crimson, and the throat yellowish; the foliage is dark green, large and fine. Mr. Ivery, of Dorking, sent a small specimen of the very attractive *Viburnum macrocephalum*, not more than a foot and a half high, with a large head of blossoms, like an *Hydrangea*, seven inches across, of greenish white flowers. Mr. Glendinning, of Chiswick, exhibited a handsome specimen of *Farfugium grande*, of which we have given a description and figure in the present number. We may add, that nothing in the class of variegated plants or of ornamental foliage can approach it; the specimen was three feet across, and about half as much in height. The upper leaves are not so richly spotted as the lower ones, which are near a foot across, and of a beautiful shining green and yellow. The same eminent cultivator contributed specimens of *Abies Kæmpferi*, a foot and a half high, a handsome new Larch from the north of China, with long graceful foliage of a lively green; also *Didymocarpus Humboldti*, not strictly a new plant, but one deserving of greater attention than it has received; the flowers are small, of a pretty lilac-blush tint, on stems six inches high. Messrs. Cutbush and Son had *Genetyllis Hookeriana*, from Western Australia; flowers dull orange-red, the petals curling back when old, when young, tubular; the leaves dark green; a free-blooming plant. A new forcing Pelargonium, named Blanchfleur, a very free bloomer, white, with a small rosy purple spot in the upper petal, but wants form; however, for early forcing it will prove useful. Messrs. Lane and Son showed *Rhododendron Edgeworthii*, pure white blossoms, four inches in diameter, and *Rhododendron sulphurea*, dwarf plants, about one foot high, flowering freely, and although small, the blossoms are very pretty, creamy yellow, with deep yellow spots. Mr. Green, gardener to Lady Antrobus, had *Tetratheca ericifolia*, a native of Australia, a foot and a half high, covered with lilac-pink blossoms, having a small maroon centre. Messrs. Standish, of Bagshot, sent *Rhododendron limbatum*, the ground-colour blush, each petal margined with crimson, very distinct and beautiful, the heads rather small, but blossoms individually large. Messrs. Frazer, of Lea Bridge, had several good things, especially *Azalea, Eulalie Van Geert*, shaded blush, with white edges, rosy carmine spots in the upper petal, of fine substance and smooth outline; *A. Indica magnifica*, var. *alba plena*, with semi-double, pure white flowers, a very free bloomer; *Rhododendron roseum floribundum*, a very free bloomer, adapted for early forcing, the flowers rosy carmine, with small maroon spots. Mr. Parker, of Holloway, exhibited a new *Cattleya* from Brazil, pale blush, with a bright purple lip, the flowers three inches across. Messrs. Jackson, of Kingston, also sent two interesting Orchids, one a variety of *Oncidium pulchellum*, with small petals and sepals, blush spotted, the lip large, white with a slight tinge, and yellow in the centre; the other *Cypripedium sp.*, from Assam, the upper petal brown, edged with green, the side petals brown towards the centre, shading off to purple at the sides, the "slipper" pale green, with fine brown veins. Mr. Gaines, of Battersea, had a large plant of *Rhododendron aureum*, from four to five feet high, covered wlth numerous heads of pale sulphur-coloured flowers, the upper petals spotted with a deeper tint, promising to be a good acquisition. Messrs. E. G. Henderson, of Wellington Road, forwarded some new and rare Conifers, as *Cupressus Lawsoniana, Chamæcyparis thurifera*, and others. The collections of *Orchids* were very good generally. Mr. Clarke, gardener to C. Webb, Esq., of Hoddesdon, gained the first prize for a collection of twelve, which included *Dendrobium nobile, D. tortilis, Cattleya Mossiæ, Phalenopsis amabilis*, and other fine species.

Roses in pots were fine, especially from Messrs. Lane and Son, of the Berkhampstead Nursery, well grown, at least five feet high, and pyramidal, in a collection of ten varieties. Mr. Francis was second. *Azaleas* were well grown, and nicely bloomed; the best were from Mr. Turner, Mr. Bray (gardener to Baron Goldsmid), Messrs. Peed, Taylor, and Ivery. Mr. Bray, in his collection, had *Prince Albert*, a fine orange-scarlet; Messrs. Ivery *Duke of Devonshire*, fine shape, light red; Mr. Turner *Purpurea arborea*, a very large flower, bright purple, with crimson spots; *Optima*, orange-red, fine substance; *Beauty of Sunning Hill*, salmon-rose, semi-double. Mr. Taylor had *Triumphant*, a clear satin rose, spotted with carmine.

Cape Heaths were from Messrs. Williams, Cutbush, Glendinning, Green, Taylor, Harlock, Rhodes, and Whitbread. Among the varieties we observed ***Florida***, a well-bloomed bushy plant; ***Alberti***, orange-buff, waxy tube; ***Perspicua nana***, blush-white; ***Ventricosa coccinea***, rosy blush, fine; ***Vestita rosea***, the whorls of rose-coloured waxy flowers having a very attractive appearance; ***Hartnelli virens***, brownish red, with white mouth. ***Pelargoniums*** were in considerable quantity, and first-rate condition; exhibited by Messrs. Nye, Wiggins, Windsor, Weir, White, and others, among the class of amateurs; and by Messrs. Turner, Dobson, Frazer, and Bragg, amongst nurserymen. The best were ***Saracen***, ***Wonderful***, ***Carlos***, ***Majestic***, ***Laura***, ***Mrs. White***, ***Gem of the West***, ***Governor-General***, ***Fandango***, ***Lucy***, ***Sanspareil***, and ***Viola***, many of them splendid, well-bloomed specimens. Among ***Fancy Pelargoniums*** we saw collections from Messrs. Turner, Frazer, Bragg, and Cutbush. The best varieties were ***Madame Sontag***, ***Lady Hume Campbell***, ***Cloth of Silver***, ***Lady of the Lake***, ***Celestial***, ***Evening Star***, and ***Jenny Lind***. Of seedlings, the finest were, ***Adela***, pink, with white eye; ***Rose Celestial***, similar, and ***Dinah***, very dark upper petals.

In ***Variegated Geraniums*** we noticed ***Hôtel de Cluny***, the foliage small, with a broad rim of white, and deep rosy band, flower intense scarlet; ***Peltatum variegatum***, an ivy-leaved sort, with variegated foliage, much curled, the flowers pink; both were from Messrs. E. G. Henderson, of Wellington Road. Of Stove and Greenhouse Plants there were numerous and excellent collections, the chief being from the following growers: Mr. Whitbread, Mr. Green, Mr. Taylor, Mr. Hamp, Mr. Barter, Mr. Dodds, Mr. Carson, and others. Among the specimens we take occasion to record the following as beautiful specimens: ***Eriostemon nerifolia***, well bloomed; ***Boronia Drummondi***, covered with small rosy pink flowers, and neat foliage; ***Ixora coccinea***, ***Aphelexis spectabilis grandiflora***, ***Franciscea confertifolia***, large purple-blue flowers; ***Pimelia spectabilis***, well bloomed; ***Tetratheca ericifolia***; ***Ixora Javanica***, orange-yellow, finely grown. Choice collections of ***Cinerarias*** and ***Verbenas*** were exhibited, a notice of which we must for the present defer.

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A WORD ON VIOLETS.

BY MR. W. GREEN, PLYMPTON.

EVERY garden ought to have a shady place devoted to the several sorts of Violets, which require little or no trouble to grow, are almost unequalled for delicacy of scent, and bear a profusion of pretty blossoms.

The Russian Violet is a charming little flower, frequently coming into bloom at the most uninviting season of the whole year. I have grown it, and several other kinds, as the Double

Purple, Neapolitan, Tree Violet, and some which I do not know by name—the whole of them well worth growing by those who would have a succession and variety. They love shade, but require water and air, and may be forced, without much trouble, in a one-light box frame, in or out of pots, as preferred. I prefer having them in pots or pans for forcing, which admits of a supply adequate to my demand at any time, and as soon as one set have gone out of flower, they are replaced by others. Some may be placed in a slight bottom heat, to bring them forward before others. The Neapolitan Violet is the best for keeping in succession, and is very handsome; its blossoms of delicate pale blue afford a pretty contrast to the white and darker varieties. Few flowers are more manageable than this; for with a little protection a constant succession of flowers may be kept up from November till spring, and out of doors the supply may be kept up till they are eclipsed by other more showy, but not sweeter flowers. A succession of bloom, from one sort or other, may be obtained almost all the year round, if attention be directed to watering and shading.

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A DESCRIPTIVE LIST OF STOVE AND GREENHOUSE PLANTS, REMARKABLE FOR THE VARIEGATION OR HANDSOME APPEARANCE OF THEIR FOLIAGE.

BY MR. WM. AITON, SHEFFIELD.

FIRST DIVISION.—STOVE PLANTS.

(*Continued from page* 126.)

MARANTA ALBO LINEATA.—Foliage bright dark green, regularly striped with white, and shaded on the under surface with purple.

M. micans.—A small species, having a light feathery stripe up the centre of its dark green, shining leaves.

M. regalis.—This is a very handsome plant, the ground-colour of its leaves bright green, with lateral stripes of rosy red; the under side purple. The price of this species is at present high, but another,

M. rosea lineata, which in some degree resembles it, may be had at a reasonable rate.

M. sanguinea.—The upper side of the leaves is a bright grass-green, and the under, clear rosy purple; the flowers are also showy, being borne in large spikes, scarlet and white.

M. vittata.—Light green foliage, covered with white stripes.

M. Warscewiczii.—Large, deep green, velvety foliage, with a feathery stripe along the middle of each leaf of a clear, pale green, margined with blotches of a deeper colour; under sides purplish brown.

M. zebrina.—A large-growing species. The ground-colour of the leaves is a dark velvety green, striped and margined with a paler tint.

The *Marantas* are plants of handsome habit, growing freely in any light rich soil, and may be readily increased by dividing the roots.

Niphea argyroneura.—The leaves are deep green, beautifully reticulated with silvery white veins, and pale purple on the under sides. A dwarf-growing plant, bearing numerous pretty white flowers.

Pandanus Javanicus, var. *variegatus.*—Foliage long and leathery, ground-colour bright green, edged and striped with silvery white.

Pavetta Borbonica.—Leaves deep green, prettily spotted with pale green; the midrib salmon-red.

Poinsettia pulcherrima.—This old and well-known plant ranks as one of the handsomest of this class of plants. The floral leaves are a brilliant scarlet, and the rest of the plant grass-green.

P. pulcherrima alba.—Resembles the above except in the floral leaves, which are cream colour.

Sarracenia Drummondii.—The pitcher-like leaves of this curious plant are of a bright yellow-green, beautifully mottled with white, in brownish red network, at their upper extremity. The flowers are large, of a light blood-red colour.

Solanum pseudo-capsicum, var. *variegatum.*—The foliage is green and white; the flowers white, produced in great numbers, and afterwards succeeded by an abundance of coral-red capsules, or berries; all combining to make it a very attractive plant.

Sonerila Margaritacea.—One of the most beautiful of all plants, remarkable for handsome foliage and flowers, which are combined in the present plant. The leaves are of a lively green, regularly spotted in rows with white dots, ribbed, and margined with faint red; the under sides marked with pink veins. The flowers are borne on pink stalks, and are pale carmine, with prominent yellow stamens. It is a profuse bloomer, and of dwarf, compact habit. It requires the temperature of a cool stove, or warm greenhouse, and in this respect comes within reach of the means of most persons.

Tradescantia discolor, var. *foliis variegatis.*—A remarkable species, with splendid variegated foliage, erect and long. The stripes, which are green and yellow, extend down the whole leaf on their inner surface, the outside being of a brilliant purple-crimson. The flowers, in purple bracts, are white, but, from their small size, not very attractive.

Vriesia speciosa.—The leaves bluish green, marked with irregular parallel bands of deep black across their whole length, but somewhat broken into blotches towards the extremity. The flowers are yellow, produced in a spike of brilliant orange-scarlet bracts. In habit, the plant bears a close resemblance to the Pine-apple.

The above concludes the descriptive list of such stove plants as are worthy of culture for the sake of their handsome leaves. In my next I will draw attention to such as require a lower degree of temperature for their cultivation, embracing greenhouse plants and those which flourish in the open air.

(*To be continued.*)

NOTES ON HARDY EVERGREENS.

BY CLERICUS.

No. I.—The Pinus Tribe.

To those who have pleasure grounds and shrubberies, it may be an assistance to give a brief descriptive catalogue of evergreen trees and shrubs, arranged according to the various genera, noticing only the most select, not only of species, but of genera, so as to bring the whole within a reasonable compass. In performing this task, it is my intention to give the preference to those things that I know from experience to be most worthy of cultivation, from their habit, foliage, and contrast. The Pinus tribe may be regarded as the royal family of evergreens, and as such I purpose to commence with it. To enumerate many varieties (and of this tribe there are a great number) would be to perplex the reader; I shall confine myself, then, to such as are select, and to be obtained at most nurseries without much difficulty. Many of this interesting tribe are possessed of strong characteristics, contrasting finely, and affording an elegant variety in habit and foliage; some being light and airy, others of closer and more dense habit; some, again, are pendulous, and some upright, but all very attractive trees, the judicious introduction of which contributes much to the appearance of tasteful grounds. In forming arboretums and shrubberies, more effect is produced by exercising a little discretion in the selection of distinct kinds, rather than in planting a great number of species, the difference of which, to the uninformed, is often so inconsiderable as to baffle their attempts at discovering it.

Pinus Douglasi, Douglas's Spruce.—A very beautiful and rapid-growing conical tree, with vivid green foliage. In its native country, North-west America, it attains sometimes near 200 feet in height.

P. amabilis, Lovely Silver Fir.—This is closely allied to the great Californian Silver Fir, but the cones are of a superior size, and the leaves entire, which is not the case in the latter-named species. It is a noble tree, growing to the height of 150 to 200 feet, a native of North America, and perfectly hardy, although at present rare in collections.

P. Canadensis, Hemlock Spruce.—A light, elegant-looking tree, reaching a height of from thirty to fifty feet in the climate of the

British Isles, although in its native localities, from Carolina to Hudson's Bay, it often attains 100 feet. The leaves are flat and solitary, like the Silver Fir, and cones drooping like the Spruce.

P. Cephalonica, Cephalonian Silver Spruce.—Decidedly ornamental, and quite hardy, although an inhabitant of the Greek Islands. Its habit resembles in some degree that of *Araucaria Cunninghami*, the branches long, horizontally spreading, covered with stiff, pointed leaves, disposed in a very irregular manner. A very distinct species, attaining a height of about 50 feet.

P. Frazeri, Frazer's Silver Fir.—From the United States, principally, however, Pennsylvania. It is a dwarf-growing species, not averaging more than about fifteen feet, and in this respect is useful as an ornament in grounds of limited extent, where taller-growing trees would be out of place. It is also perfectly hardy, and of neat appearance. The leaves are very short, of a deep green, arranged in two horizontal rows.

P. nobilis, Noble Silver Fir.—For a large domain, there is scarcely a more magnificent tree than this, attaining, as it does, a great height and affording excellent timber. In beauty, it is a rival to the Araucarias, and in its native district it forms vast and noble forests, from the Columbia to the mountains of California. The unfortunate Douglas was the first to forward cones. It may be had in small specimens, at a reasonable price, and is perfectly hardy.

P. Khutrow, Himalayan Spruce.—Another magnificent species, from the Himalayas, growing at an elevation of from eight to ten thousand feet above the sea-level, and therefore quite hardy with us. It reaches sometimes upwards of a hundred and twenty feet, though its average is stated to be half that height. It is of a drooping character, exceedingly ornamental, and makes a beautiful appearance on a lawn or in the foreground of a shrubbery, the branches being slender and feathery, closely set with leaves from one to two inches in length, of a very distinct green tint. When grown as a single object on a lawn, and not in a crowded situation, its beauties are fully developed, and it is feathered down to the ground, a beautiful pyramid of vegetation.

P. Menziesii, Menzies' Spruce.—The leaves of the present species are of an extremely pretty shining green, with silvery white lines on the under side, making it a very conspicuous object. Its habit is pyramidal and growth luxuriant, soon attaining a considerable height. Boggy soil suits it admirably, and it is reported to furnish timber of valuable qualities.

P. pendula, Weeping American Larch.—An interesting, rather dwarf tree; the branches are long, pendulous, and at rather wide intervals; leaves long, deep green; the bark is smooth and dark coloured. Very suitable for a lawn.

P. Atlantica, Silver Cedar.—A noble tree of beautiful appearance when fully grown, and even in a young state it is remarkable for its attractive conical form. The leaves are glaucous, of a silvery green. It inhabits Mount Atlas, and attains a large size, though of slow growth.

P. Deodara, Indian Cedar.—Without exception, the most ornamental and imposing of all Conifers, growing well in a variety of soils, preferring, however, a somewhat moist situation. Its graceful habit, when young, is well known; in a state of maturity, it reaches one hundred and fifty feet in height, and as much as forty in circumference. The leaves are longer than those of the Cedar of Lebanon, of a glaucous green, and branches pendulous, thickly adorned with large-sized cones. The wood is said to be of great durability, and capable of receiving a high polish, qualities which will doubtless cause it to be extensively planted in this country, especially as it bears our winters perfectly. An avenue of Deodars, like the one in the Kew arboretum, will, in the course of a few years, present a most magnificent spectacle. It is indigenous to the Himalayas, growing at an elevation of from six to twelve thousand feet.

P. Cedrus, Cedar of Lebanon.—A description of this well-known and renowned tree is perhaps unnecessary; and I only need to add that on a lawn it is a beautiful object, and thrives best in a rather sheltered situation.

P. Lambertiana, Lambert's Pine.—The immense height to which this tree attains would tend to exclude it from small grounds, were it not that it is rather a slow grower, reaching, however, more than two hundred feet, when at maturity. The trunk is clean, smooth, and very straight, the branches in whorls, somewhat pendulous, and the leaves about five inches long, of a grass-green colour. The cones are of a size well proportioned to that of the tree, being frequently fifteen inches long and a foot in circumference, tapering and hanging downwards. It is very hardy, and was discovered also by Mr. David Douglas in North-west America.

P. Devoniana, Duke of Devonshire's Pine.—A fine tree, growing about seventy feet high, from Real del Monte, in Mexico. The leaves are a foot long, and cones ten or twelve inches. Perfectly hardy.

P. filifolia, Thread-leaved Pine.—The leaves of this species are longer than those of any other, being commonly fifteen inches, and not unusually some are found a foot and a half in length. The branches are of an enormous size, and noble appearance; the cones average seven inches in length. It was detected by Mr. Hartweg in Guatemala.

P. Gordoniana, Gordon's Pine.—Another remarkable species from Tepic, in Mexico, introduced also by Mr. Hartweg; although not so long as the preceding, the leaves of the present species are from fourteen to sixteen inches long, on branches borne in whorls, of a pale green colour. The cones are rather small, not often exceeding four inches in length. The tree grows about sixty feet high, and is very suitable for planting in groups, which have a singular appearance, from the waving tresses of its long leaves.

P. Coulteri, Coulter's Pine.—A rather scarce species at present, but very desirable, for its beautiful appearance. From California, where Mr. Douglas found it growing with *P. Lambertiana*, and varying from eighty to more than one hundred feet in height. The branches are large and spreading; leaves broad, fifteen inches long, of a glaucous green. The cones are of a magnificent size, twelve inches long by six inches across. It is a very hardy species.

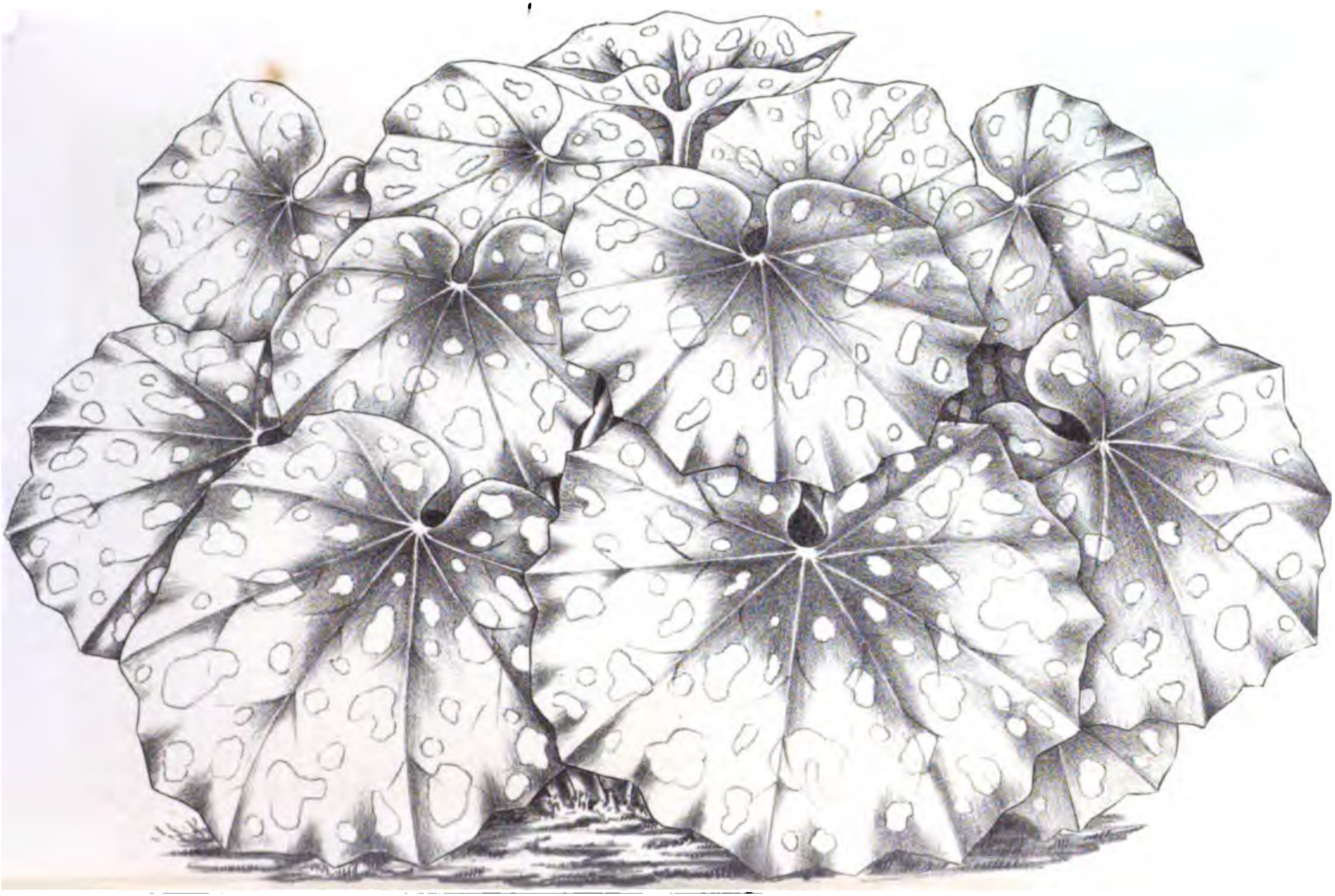
P. insignis, Remarkable Pine.—The chief attraction of this consists in the singular character of its foliage, which covers the branches very thickly, twisting in all directions, of a bright green colour, and four or five inches long. Its cones are small, and the tree a very rapid grower, reaching a moderate height. From California.

P. Sabiniana, Sabine's Pine.—Indigenous to North-west America and New Albion, where it grows upwards of one hundred and twenty feet high, branching down to the ground; its cones are large, covered with prickly scales, and borne in whorls or clusters of from five to nine, often near a foot long, and as much as eighteen inches in circumference; leaves pale green or whitish, about ten inches long. A very hardy, rapid grower.

P. Sinensis, Chinese Pine.—Thickly covered with rich grass-green foliage, five or six inches long, and slender. It reaches a considerable height, and bears a great number of little cones.

P. inops, Jersey Pine.—Height about thirty feet, growing best in a dry soil; its branches are long and pendulous, twisting; leaves dark green, and short. The cones are about two inches long, borne in profusion. The old bark is very rugged, and full of cracks, from which a great quantity of yellow resin exudes. A native of New Jersey and Carolina.

THE MOUTAN PÆONIES.—When Mr. Fortune visited China on the service of the Horticultural Society, the acquisition of new Moutans was one of the first objects to which he attended. In his *Wanderings*, he mentions the beauty of the varieties seen by him at Shanghae; how he heard of yellow, and purple, and blue sorts; and at one time saw lilacs and purples, some nearly black; at another, dark purples, lilacs, and deep red. Afterwards, having discovered that these things came from a place only six or eight miles from Shanghae, Mr. Fortune tells us that he proceeded there daily during the time the different plants were coming into bloom, and secured some most striking and beautiful kinds (now in the garden of the Horticultural Society). The name *Moutan* seems to be an alteration of the word *Botan*, the usual name of these plants in Japan, as we are told by Kæmpfer, who adds that it is also called *Fkamigusa* and *Hatskangusa*. As the Japanese name the common Pæony *Saku jaku* and *Kawa jakusa*, they seem to think the Moutan and Pæony distinct genera, in which I quite agree with them. It is to be suspected, also, that more species than one is comprehended under the common name of Tree Pæony, even although, as is probable, the Poppy Moutan (*P. papaveracea*) should be a mere variety of the common kind; for some of the Japanese kinds are said to form rapidly a woody stem eight or ten feet high—a stature which the common Moutans would only gain after many years in even favourable climates. The Chinese and Japanese are said to reckon their varieties of Moutans by hundreds, as we do our Roses. It is not improbable, now that the single and very slightly double kinds are beginning to establish themselves in Europe, that we too shall have the same dominion over them as over Camellias and Chrysanthemums.—*A. Z.*



FARFUGIUM GRANDE.

(*See Plate.*)

IN our February number (p. 42) we gave a brief notice of this extraordinarily fine plant; we have now the pleasure of giving our subscribers a figure, one-sixth of the natural size, which shows its habit very correctly. Mr. Fortune discovered it growing in the garden of a mandarin, in the north of China. According to Mr. Fortune, the Chinese grow it in pots, for decorating their houses and gardens, where it produces a very fine effect, from the striking beauty of its numerous, large, yellow-spotted leaves. We would recommend our readers to go and see it, at Mr. Glendinning's nursery, Chiswick, who is now receiving orders for it, although, as he informs us, it will not be sent out for some time. In this country it will form quite a new feature for vases and flower-garden decoration.

ON THE TREATMENT OF HOVEA CELSII.

BY A KENTISH GARDENER.

PERCEIVING, in your last number, an inquiry by "A Subscriber" respecting the proper method of managing this plant, I have taken the opportunity to forward a few remarks in reply, should they be deemed worthy of a place in the next number of your valued *Cabinet*. The habit of this Hovea is decidedly bad, and it requires no little skill to overcome its natural tendency to a thin and straggling growth; but no plant so well repays the care required in counteracting it. Its beautiful little blue blossoms, closely enveloping the stem, have always rendered it a favourite with me, notwithstanding its natural bad habit, and the care required in producing a handsome-bloomed specimen. There are a few points that require attention, and which are too frequently overlooked in growing Hoveas; these I shall briefly touch on in detailing my method of treatment. To begin with cuttings: these may be prepared and struck in the same manner as Heaths and other plants of that class; when struck, they may be put into small sixties, or pots about two or three inches across (it is best not to have them too large at first), in a soil made up of peat, one part, and loam from decayed turf, two parts, with a tolerable sprinkling of silver sand; manure of any kind is inadmissible, and, indeed, positively injurious. This compost should be passed through a coarse sieve, and the pots provided with plenty of moss or crocks, to secure liberal drainage. The young plants ought not to be put in deeply, just sufficient to cover the roots being all that is required. When they are established, which will be shown by the fresh green leaves at the crown of the stem, pinch out the top, and set them in the most airy part of the greenhouse, near the glass, but shaded from the heat of the sun, when it comes out strong. Plenty of air is necessary, to prevent their being drawn up, and the object of obtaining a dwarf bushy specimen defeated. They must not be exposed, however, to cold or drying winds, or they will be checked; the soil may be kept just uniformly damp, but never absolutely wet. Here they will soon throw out a number of young laterals, which will speedily attain a length of from two to three inches, when their ends should be pinched in; when any more are produced, it will require judgment to decide which should be permitted to stand, so as to form a handsome but not overcrowded bush.

The young plants had better not be allowed to bloom too early, for if you look to future effect rather than the present, it will be well to pick off the incipient bloom as fast as it shows itself, and keep the branches pinched duly in. Nevertheless, the Hovea is a beautiful object, even if it bloom ever so young; and it may, if desired, be allowed to flower the first time it makes flower-buds. When the blossoms decay, it is well to remove them, rather than to allow the ripening of seed, for that tries a plant more than anything else.

The young plants will require judicious shifting; the time when this ought to be done can only be determined by turning out the balls, and when it is seen that the roots have reached the side, and begun to run round it, change the pot to a size larger, before the fibres begin to mat together. The young wood only bears flowers; this will therefore require attention whenever the plant is trimmed. So long as it has healthy, but not too rich, soil, and is properly stopped back, the Hovea will grow bushy and bloom well.

To form standards (which, however, to my mind, never look so well as dwarf bushes), almost all that is required is to let the plant alone, as they put forth very few laterals naturally, and where they do come out, they should be rubbed off as soon as the buds appear. As the tree grows, the leader may be trained up; and when it has attained the desired height, shorten in the head, leaving only five or six branches, each of which should have five or six buds, and pinch out the leader. It will soon push out others, which will require attention to prevent their making an entangled head, and such as have a tendency to grow erect may be tied down. Allow all to grow so as to make the best effect, stopping such as would crowd the centre of the head. After a time, those which have been tied out will keep the desired position permanently; and by this and such other means as are well known to the gardener, the Hovea may be made a handsome standard. Quick growth must be avoided in forming it either as a bush or standard; therefore I would repeat the caution that anything too stimulating must be withheld, as too rich compost or too close an atmosphere. Water may be supplied rather freely in summer; but in winter only in fine weather, and then in reduced quantity.

By attention to these simple rules, I am persuaded that your correspondent, "A Subscriber," and others who grow this lovely plant, will experience no difficulty in forming nice specimens, and in blooming them well. I may add that similar treatment suits *Hovea ilicifolia* equally well.

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HISTORICAL REMARKS ON THE TASTE AND STYLE OF ORNAMENTAL GARDENING.

BY HORTULANUS.

THE earliest attempts at ornamental gardening in modern times, of which we have any reliable and particular accounts, were regular enclosures, with everything they contained arranged most symmetrically, with trim clipped edges, and straight walks fenced in with lattice-work. This rectangular, stiff, and formal style continued to prevail from the earliest times till after the commencement of the eighteenth century. Before this, Le Nôtre, a French gardener and architect, was extensively employed in almost every country in Europe; some of his work may yet be seen in France, and many imitations of his style elsewhere. But whilst Le Nôtre and his pupils were driving every trace of nature from garden scenery, painters were contemporaneously engaged in the study of it in its wild aspect, and it is remarkable that in their productions very few trim garden scenes are introduced. It seems as if the idea had not yet been entertained that the principles of ornamental gardening and of landscape painting are the same, for the artists in each profession took exactly contrary courses; the painter studying nature on his canvas, while the gardener busied himself in cutting, tying, and slashing vegetation into the most whimsical and regular figures his ingenuity could devise. Geometry was his text-book, and without it he could not prune or plant a tree, trace a line, or even trim a hedge! Thus were painters and gardeners engaged, each with professedly the same object in view: the one forming imaginary, and the other real scenery; the one enamoured of rusticity, and the other offended if a single leaf projected beyond the limits his unwearied shears had assigned.

After a while the struggle between nature and trim-art was decided in favour of the former, and Kent, a landscape painter by profession, gave it up to undertake the planning and laying out of grounds; although he aimed at too much, by endeavouring to obtain immediate effect, yet his style was an improvement on that of his predecessors. I say he endeavoured to obtain too much, inasmuch as he mainly depended on the introduction of large trees at once removed, and then, to give appearance of age to the scenery (so near is the ridiculous to the sublime), planted dead trees with the living ones! Many country seats of the nobility of the time were capable of great improvement, by merely doing away with their burdensome formality; a reformation took place, and every connoisseur wondered how the contracted ideas of a gardener could have been so long tolerated. In course of time Dutch and Italian designs disappeared altogether. Thus the regularity of the old style was excluded, to admit the irregularity of the new. The new style received the title of "English," and some very perfect things of the kind were executed in various parts of the country; not, however, by clearing away all the old style, but by a judicious rejection of many of the more objectionable features, and a tasteful reservation of a part of them. In the execution of all this, the most refined taste, united with a competent share of arboricultural knowledge, is of the first necessity, and this, it is said, is much assisted if the talents of the landscape painter be combined.

(*To be continued.*)

THE FRESH-WATER AQUARIUM.

BY MR. SHEPPARD, BURY.

(*Continued from p.* 103.)

JUNE is an excellent time for collecting specimens for stocking the fresh-water aquarium, I would therefore advise the beginner to lose no time in making a commencement. The handsomest of all plants for the purpose are the Ferns, such of them as are fond of moisture at least, and these may be found in boggy places, under the drip of rocks, and on the banks of rivulets; here the collector may obtain choice specimens for planting on his projecting miniature rocks and ledges, although it will save time and trouble, if these particulars be regarded, to purchase them of the nurserymen, or such of the seedsmen as supply plants for aquaria (and their number rapidly increases). When they are planted, the old fronds had better be taken off with a sharp knife, and the plants put in so that the rhizomes are just clear of the water, for they will not grow where the compost is sodden with moisture. A portion of coarse sand, small broken chips of limestone, and fresh mould may be laid in the crevices to receive them, and when planted, small patches of fresh green moss may be laid over, through which the young fronds will quickly penetrate; moss serves as a protection from any undue exhaustion, should the sun happen to shine too powerfully on the glass. It is well to avoid crowding the case; therefore, for one of moderate dimensions, two or three sorts should suffice. When the foliage decays, cut it off with a pair of scissors, and let the roots have entire repose.

The following is a selection of a few Ferns most successfully grown by me in these aquaria, any of which the reader may procure with facility, although there are many more equally well adapted for the purpose:—

Polypodium dryopteris, one foot and a half high.
Cistopteris fragilis, one foot high.
Cistopteris alpina, half a foot high.
Scolopendrium vulgare, one foot and a half high.
Adiantum capillus Veneris, one foot high.
Trichomanes Tunbridgense, four inches high.
Ophioglossum vulgatum, four inches high.

Of other plants which may be appropriately introduced, are a few aquatics. Such as float on the surface of the water are the following:—*Potomogeton fluitans*, the floating Pondweed, a little patch of this will suffice, as also of the common Duckweed, *Lemna minor* and *L. gibba*, which should not be allowed to spread very far, or the beauty of the scene will be much impaired. They may be obtained from almost any pond or dyke, and are very interesting little plants, illustrating the fact of aquatics absorbing by their under surfaces, and giving out by their upper pores. This genus gives off oxygen more rapidly than any any other plant, as may be proved by immersing a few specimens in a jar of water, inverting it, and placing it in the sun; the water is displaced and a volume of pure oxygen soon obtained that will kindle a spark on charcoal, which burns with great brilliancy in such an atmosphere. *Ranunculus aquatilis* is another capital plant for the aquarium, if regularly thinned, as it is apt to grow rather luxuriantly. It is a most elegant plant for the water, its finely cut leaves floating gracefully therein, and its pretty blossoms of pure white are surpassed by few aquatics. The plant sends down numerous fibres to the bottom of the mud, and many creatures sport among its tufts. When the flowers decay it is best to cut them off, as well as the foliage. The Frogsbit, *Hydrocharis morsus ranæ*, is a handsome little Water-lily-like plant, bearing white flowers of three petals, which ought to be in every domestic aquarium; also *Hottonia palustris*, the Water Violet, which bears a corymb of delicate pink flowers, almost resembling a Phlox. It grows almost too high, however; nevertheless, where circumstances permit, it should by all means be grown, and although I have never met with it wild in the neighbourhood of London, it may be had by order of some of the nurserymen.

In my aquaria I have grown and would recommend to others the annexed list of water-plants, from which selections may be made, besides the few plants named above, which are the most attractive.

Nasturtium officinalis, the Water Cress, white.
Nuphar lutea, the Yellow Water Lily.
Aponogeton dischatyon, Cape Pondweed, white.
Veronica becabunga, Brooklime, blue.
Lobelia Dortmannia, blue.
Damosonium Indicum, white.

Besides these, there are a few fresh-water Algæ, of which I do not know the names, and several species of Confervæ, with a few Rushes. The Yellow Water Lily requires a large aquarium to show off its beauties. Many persons will be guided by their locality in the selection of plants, but a few visits to the water, whether of ponds or rivers, will enable them to select plants suitable for their purpose; and here I would strongly offer my protest against overstocking an aquarium. When overcrowded the plants neither flourish so well, nor look so healthful as when they have freer scope to develope themselves, and those who are fond of variety can obtain it each successive year, by the rejection of old and the introduction of fresh species.

As to live stock, a few small fishes, water-beetles, and some of the prettily spotted and variegated harmless water-newts are all that is necessary. Gold-fish are perhaps the best of all for the purpose, but little sticklebacks, minnows, gudgeons, and Prussian carp are very elegant creatures. To obtain these I apply to any of the dealers in fishing-tackle, who will undertake to supply them at a few days' notice. Several species of water-beetles, as the great black *Hydrous piceus*, the pretty, active little *Gyrinus natator*, and many others, may be got by the use of a small hand-net in any large pond, especially in the south of England for the first named. Those who live near London may save time, however, by paying a visit to Mr. Brigden, of the Arcade, London Bridge, who supplies these and many other interesting inhabitants of the water for a trifle. A few fresh-water snails are highly useful in every aquarium; they have been called the scavengers of nature, and will be found to keep the water as well as glass clear of all scum and green slime. Under my own management the cases and fluid look as clear as crystal, and yet I devote very little attention to them personally.

In conclusion, Mr. Editor, and gentle reader, few articles look so pretty and are half as interesting as the fresh-water aquarium when neatly made, properly supplied, and judiciously superintended. We see so much beauty, so much of wisdom in the working of such an object, as cannot fail to call forth our admiration of the wonderful adaptation of parts and uses of creatures, apparently insignificant, in the lower orders of creation. Stay-at-home travellers, as well as those who "go down to the sea in ships," may here have "something to please and something to instruct," from one end of the year to the other.

I forgot in the proper place, and take occasion to mention it here, that a few lumps of clear, bright green glass make a pretty appearance introduced among the pebbles and stones at the bottom of the aquarium. Those who desire a cheap aquarium for the purpose of study may use a common large propagating glass, inverted on a stand of wood; and although their form, cylindrical, is not the best adapted for viewing the contents, they answer very well; and a large-sized one, sixteen inches across, may be had for about 3*s*. 6*d*.

BOTANY OF THE MONTH.

BY MR. SHEPPARD, BURY.

INNUMERABLE herbs and flowers deck our fields, woods, and hedgerows in the "leafy month of June," which is, indeed, the month when fair Flora reigns supreme in field and garden. At this season the great majority of British flowering plants are in blossom.

> "The *plant*, upspringing from the *seed*,
> Expands into a perfect flower;
> The virgin daughters of the mead,
> Wooed by the sun, the wind, and shower.
> In loveliness beyond compare,
> They toil not, spin not, know no care."

Those who are fond of the beauties of nature, and the collector who wends his solitary way, removed from the turmoil of smoky cities, searching for plants to fill the pages of his herbarium, which he culls now in the green pasture, and anon from the moss-clad rock, or, may be, steep hill-side, armed with his knife, trowel, and tin box, may now meet with an abundant harvest to repay their toil and happy labour.

About the beginning of the month we find the Wild Thyme, *Thymus serpyllum*, in blossom. Of this plant there are several varieties, all great favourites with the bee; so fond are these insects of Thyme and other aromatic plants, that it is worth while for the bee-keeper to grow them near the hives. Virgil praises this sweet herb in his Bucolics—

> "Allia, Serpyllumque herbas contundit olentes."

The Wild Dog-rose, *Rosa canina*, is common in hedges; true type of love and beauty, and a fit successor to the fragrant Hawthorn, whose berries are accompanied in winter by the bright scarlet fruit of the Wild Rose, known as *hips*. This variety is distinguished from the other English Roses by its spines or prickles, which are hooked at the end, and by its leaves being destitute of hairs. I cannot refrain from quoting the following poetic allusion to this flower, climbing o'er our hedgerows in the beauty of its June floration:—

> "Here the Wild Rose's arching spray
> Flaunts to the breeze, above the shady way:
> What palace proud, what city hall,
> Can match these verdant boughs, that fall
> Vaulting o'er banks of flowers, that glow
> In hues of crimson, gold, and snow?"

Another favourite is the Honeysuckle, *Lonicera periclymenum*, often to be seen accompanying the Wild Rose; so well known a plant likewise needs no description. It is the poor man's shrub, and often decorates the rustic porch, or climbs the trellis of the humble cottage, where it diffuses a scent scarcely to be approached by that of any other flower. It is often associated with Ivy, the latter an emblem of age and the past, whereas the Honeysuckle serves to remind us of youth and the living present, whilst its fragrance and beauty appear most appropriate to the happy home it adorns.

"Then tell me not of austral flowers,
Or purple bells from Persian bowers,
The Woodbine of this land of ours
Is dearer far to me.
This flower in other years I knew;
I know the spot wherein it grew,
With Violets white and Violets blue,
Around the garden tree."

In shady woods, we may discover the elegant little Wild Strawberry, *Fragaria vesca*, with its little flowers, so white and so delicate, and its pleasant fruit. It was called *Fragaria* by the Romans, from the fragrance of its fruit, though there is some doubt as to the origin of its English name "Strawberry." The late Sir Joseph Banks attributed the name to the practice of placing straw under the fruit as soon as it began to swell, but we must bear in mind the name was given to the plant at a time when it grew wild in our woods only, and had not even been introduced to the garden of the abbey or monastery. To me it appears more probable that the name has been given in allusion to the fact that the fruit was in former times sold threaded on straws, and so many straws for a penny. Our native Strawberries have long been cultivated, and since much improved. We find Old Tusser, who lived in the reigns of Henry the Eighth and Elizabeth, gives the following quaint instructions for planting Strawberries, in his "Five Hundreth Pointes of Good Husbandrie:"—

"Wife, into the garden, and set me a plot
With Strawberry roots, of the best to be got:
Such growing abroad, among thorns in the wood,
Well chosen, pricked out, prove excellent good."

Convallaria majalis, the Lily of the Valley, well known for its drooping stalks of pure white, bell-shaped flowers, blossoms this month. It is a British plant, though not now found so abundantly as in former times. Another plant of somewhat similar appearance is the Solomon's Seal, which, however, grows much higher, often reaching from two to two and a half feet in height; it is found in shady woods in many parts of the kingdom. The poets have called both plants emblems of purity and humble innocence. The Clustered Bell-flower, *Campanula glomerata*, may now be met with in corn-fields, though we may not call it a common plant; several other species are also in bloom, all remarkable for the delicate blue colour of their pretty bell-shaped flowers. Veronicas and Salvias abound; many species of both genera being pretty, and well worthy our notice. The fields of Clover, *Trifolium pratense*, now in flower, produce a delightful fragrance, as well as the Sweet-scented Vernal Grass, *Anthoxanthum odoratum*, which latter plant is the cause of the very delightful scent of hay. Oft, in the fenny districts, we meet with the Yellow Flag in bloom, *Iris pseudacorus*. It grows in ditches and on river banks, the beauty of which situations is much enhanced, the present and following months, by its large, golden-looking flowers and sword-shaped leaves. Of trees and shrubs in bloom, we may notice the Ash, *Fraxinus excelsior*, and the Privet, *Ligustrum vulgare*, both belonging to the same natural order, namely, that of the Olive, *Oleaceæ*. The Ash is valued for the beauty of its foliage, as well as for its serviceable wood; by some it is considered a rival to the Oak, and the poet says—

> "Aloft the Ash and warrior Oak
> Cast anchor in the rifted rock."

Our coasts furnish many plants in flower, but of which I can only here mention the names. There is the Sea Barley, *Hordeum maritimum;* the Loose Sedge, *Carex distans*, which grows in salt marshes; the common Alkanet, *Anchusa tinctoria;* the Roman Nettle, *Urtica pilolifera*, in sea wastes; the Sea Rocket, *Bunias cakile*, on sandy shores; and the Sea Chickweed, *Arenaria peploides*, all very interesting plants, though possessing no great beauty of flower. I am aware that in the foregoing brief list I have omitted any mention of a great number of the delightful flowers of our native isle; I must, however, for the present, content myself, and refrain from drawing too largely on your valuable space, or the patience of your readers, yet allow me to add, in conclusion—

> "Not all-forgotten be those humbler flowers
> Daisies and Buttercups—the child's first love;
> Which lent their magic to our guileless hours,
> Ere cares were known;
> Ah, joyous time! through verdant meads to roam,
> With wild flowers strewn."

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ON THE SOIL MOST SUITABLE FOR GROWING THE RHODODENDRON.

BY J. W.

ALTHOUGH many persons who have written on the cultivation of this truly noble shrub, and other so-called American plants, have recommended first one and then another preparation as a compost, and each urging his own as the best, it has been found that nothing suits the Rhododendron so well as good fibrous peat from an old common. The best specimens, such as those grown by Messrs. Waterer, and others who are famous for them, are planted in nothing else. It is necessary to remark that the peat, in order to suit the Rhododendron, should have plenty of fibre in it, so that it may be taken up in large turves without falling to pieces; in this they will be found to flourish amazingly. The beds may be five feet wide, and should have the soil thrown out about eighteen inches in depth, and the space filled up, and a few inches more added at top, with such fibrous peat chopped up small. If the soil where the beds are formed be stiff or clayey, drainage had better be provided for, as stagnant water is the greatest injury to this shrub than can exist. That they grow sometimes in boggy places in their native climate I am aware, but there are many circumstances under which they grow that we do not supply here, and even the American swamps are dry for some distance from the surface in hot weather. In our climate the Rhododendron requires a liberal supply of water when the sun has much power, as few shrubs suffer so much from drought; if we have the means of flooding the beds at such times, nothing can be better.

For pot culture a little difference may be made in the soil, by the addition of one-third loam from a rich pasture, with the peat; this, well amalgamated together and rubbed through a coarse sieve, answers well, although a little cow-dung thoroughly decomposed is strongly recommended by a friend who has grown this shrub in pots, with decided success. With such soil, for plants either in beds or pots, there is no difficulty in growing or flowering Rhododendrons in the greatest perfection.

REMARKS ON THE CULTURE OF THE IXIA.

BY MR. JAMES STEWART, GARDENER, WITCHINGHAM HALL, NORFOLK.

HAVING observed that some of your correspondents request a few hints from successful cultivators of the Ixia, on its management, and having had considerable experience as well as devoted much attention to the growth of this pretty little bulb, I send a few remarks, which, if thought worthy of a place in your valuable publication, are at your service.

I have chosen the present time for my communication as the most opportune, as I have invariably noticed that the management the bulbs receive after they have done flowering determines the state of the following year's display, and if not properly treated at such time a failure will certainly ensue. My plan, when the plants are going out of flower, consists in giving them occasionally a little rather strong manure-water, until the foliage begins to turn yellow, after that I withhold water almost altogether, and in three weeks or thereabouts I dry them off, turn the bulbs out of pot, and place them in a box which is made to hold them in compartments, so that each variety is kept separate; here they remain until the time for planting out, about the end of September. When the time arrives I proceed to select out the strongest bulbs, and pot them in six-inch pots, naming them, and adding the letter F, to denote that those are the flowering bulbs; the small ones I divide into three classes, the best of which I label "store," the second size "No. 2," and the smallest "No. 1." When all are potted off I place them in a cold frame, where they remain during the winter, and till the end of March, not giving them any water during the whole of that period, while they remain in the frame; they need but little covering in this state. Care must be taken that they do not "damp off" during winter, which may easily be prevented by giving air when the weather allows. By the end of March they are taken out of the frame and placed in a vinery at the back, where the temperature is maintained at about 55°; at this time I commence giving them a little water, increasing the supply in due proportion to their growth, and every two or three days some good manure-water, which suits them well. This treatment they continue to receive until they have gone out of bloom, and the foliage shows signs of decay. The compost I use is composed of three parts sandy loam, two parts well-decomposed manure from an old hotbed, with the addition of a little sharp sand. Plenty of drainage is necessary, which in a great degree contributes to prevent their damping off in the dull months of winter, and the soil is not rendered sour by stagnant water.

At the present time I have from ten to fifteen spikes of bloom in the six-inch pots, with eight or nine flowers on each spike.

[We regret our correspondent's communication arrived too late for insertion in our last.—Ed.]

HINTS ON THE CHINA ROSE.

BY MR. PETER MACKENZIE, WEST PLEAN.

CULTIVATORS of China Roses are not altogether agreed respecting the proper season of the year when such Roses should be propagated from cuttings. Some, taking time by the forelock, commence in January and February, putting some pots of plants into a stove which is heated to sixty or seventy degrees of heat. In the course of a short time there are some young shoots ready, from which cuttings are prepared; these are put into pots, and the soil used may be a compound of fine sand, sandy peat, and leaf-mould. After inserting several cuttings into each pot, and the earth settled with water from a fine-rosed watering-pot, they are plunged in a hotbed frame, or left in the stove, covered with bell-glasses. When they are struck and potted into small pots, they will be ready in May to turn out into beds and borders, adorning the garden with their beauty, and filling the air with their fragrance during the summer months. But every lover of Roses has not stoves and hotbed frames to increase their favourite flowers, and many of them have to sing the song of

THE BLIGHTED ROSE.

A Rose in yonder garden grew,
  In summer beauty bright,
It fed upon the fragrant dew,
  It bathed in beams of light;
The gentlest zephyr still would creep
  Warm o'er it from the west,
And the night spirit loved to weep
  Upon its beauteous breast;
While all the haste of insect beaux
Would pause to trifle with the Rose.

Other cultivators of the China Rose recommend April as a good time to place their plants in heat in order to obtain cuttings, and when the young shoots are two or three inches long, they are cut off close to where they last pushed from, inserted in sandy loam, and placed in moist heat, where they soon strike root, and will make fine blooming plants for the summer and autumn. But the "queen of flowers" has many enemies to contend with.

Alas! the flower, one fatal night
  The mildew rode the gale,
And from his pinions scattered blight
  O'er garden, bower, and vale.
I saw it in the sunny morn,
  'Twas dying on its stem,
Yet wore, though drooping and forlorn,
  Its dewy diadem.
But every roaming butterfly
Looked on the Rose and wandered by.

Winter, with its cold and sharp knife, often tries to make cuttings of our China Roses, but such cuttings are more fit for firewood. A stock of young Rose plants may be obtained in a very simple way by those who have not every convenience for propagating them when wanted. At the close of the season, when old plants are cut in, instead of taking the prunings to the rubbish-heap, make cuttings of them, and put them by fifties or hundreds in pots well drained and filled with sand: keep them rather moist, and place the pots in the warmest part of the greenhouse; many will be surprised at the number of young plants they will have in spring, with little or no trouble, and although misfortune may befall some of our out-of-door favourites, and

"The breath of morning had no power upon its faded cheek;
The breezes came, and found the flower they once had loved, a wreck;
They were old friends, and when they fled—who used to linger here—
The Rose would bow its gentle head, and shake away a tear,
But never raised its humid eye to gaze again upon the sky."

It is some comfort, after a winter's battle, where generals of renown have fallen, and hosts of nobility perished, and noble names almost extinguished from the flower garden, to have an army of reserve to fill the places of the slain, at small cost and little trouble, for those who wish to adorn their flower gardens with China Roses.

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NOTES ON NEW AND SELECT PLANTS.

BIGNONIA ROLLISSONII. Nat. Ord. *Bignoniaceæ.* This is a stove climber, of first-rate merit, from Brazil, of good habit, and very free flowering. The blossoms are of a bright golden yellow tipped with white, which make a very pleasing contrast. They are produced in large bunches.

71. PASSIFLORA VITIFOLIA. Nat. Ord. *Passifloreæ.*—A handsome addition to this beautiful class of plants. For it we are indebted to M. Triana, who found it in a few localities in the Cordilleras of New Granada. It resembles in some degree *P. sanguinea*, bearing very large, brilliant flowers and fine foliage, somewhat like the vine. It requires the temperature of a warm house, to which it is a great acquisition.

72. PUTZEYSIA ROSEA. Nat. Ord. *Hippocastaneæ.*—An ornamental stove plant, of the first order. The flowers resemble those of the horse-chestnut, borne in terminal panicles, of a beautiful rose colour. The foliage is large and fine, and in its early stages of a reddish purple. It has been named in honour of M. Putzeys, the learned President of the Royal Floral Society of Brussels.

73. XANTHOSOMA PILOSUM. Nat. Ord. *Aroideæ.*—A curious plant, belonging to the Arums, with large heart-shaped downy leaves. The flowers are whitish, with purple markings on the inferior side. A native of New Granada, whence plants have been received by M. J. Linden. It requires stove culture.

74. EURYBIA GUNNIANA, *var.* SALICIFOLIA. Nat. Ord. *Compositæ.*—The only known specimen of this plant has just bloomed, for the first time, in the conservatory of the Horticultural Society. It is a shrub of rather graceful habit, attaining a height of five or six feet. Its stems are mealy, purplish, and somewhat angular; the leaves narrow, lanceolate, recurved, and mealy on their under sides; flowers in short, axillary, corymbose racemes, with about a dozen white rays surrounding a yellow disc. It is regarded by Dr. Hooker as a mere variety of *E. Gunniana*, from which it differs, however, in its leaves. A native of the south of Australia and Van Diemen's Land, where it grows rather plentifully. (*Gard. Chron.*, 198.)

75. COMPARETTIA FALCATA. Nat. Ord. *Orchideæ.*—This plant

was collected by Mr. Linden, in the neighbourhood of Merida, Columbia, who forwarded a plant to the Royal Gardens of Kew, where it bloomed in the stove, in December, 1856. It is a small-growing species, bearing a raceme of from four to six remote flowers, of a crimson-red colour. The lip is large and conspicuous, each bloom about an inch across. (*Bot. Mag.*, 4980.)

76. Befaria Mathewsii. Nat. Ord. *Ericaceæ.*—It bloomed in the greenhouse at Messrs. Veitch's nursery, in the King's Road, Chelsea, in March of the present year. Its flowers are pale sulphur-white, on terminal, scaly peduncles, ten or twelve in each; in form they somewhat resemble a Rhododendron. Its leaves are oblong-elliptical, acute, glabrous, and dark green. In its native region it forms a large shrub, or small tree. Mr. William Lobb sent seeds, which he collected on the mountains of Peru. (*Bot. Mag.*, 4981.)

77. Calceolaria hyssopifolia. Nat. Ord. *Scrophularineæ.*—A decided acquisition, described by Dr. Jamieson as one of the handsomest of the genus. He says, "It grows on the pastures above the level of Quito, at about an elevation of 10,000 feet. It is a truly elegant shrub, two feet high, and throws its panicles of bloom all over and around the plant, so that it looks as if adorned with a canopy of white and golden balls. The blooms partake of both colours, which greatly heightens the effect." It is of an erect, stiff growth; the stems dark purple; leaves linear-lanceolate, opposite, and drooping, Flowers produced in terminal clusters, individually about half an inch in diameter. It succeeds well in the open border during summer. (*Hort. Soc. Journ.*)

78. Aerides cylindricum. Nat. Ord. *Orchideæ.*—A curious Orchid, stated to be a native of the Jyamally Hills, Coimbatore, in the East Indies. Its foliage, as the name indicates, is cylindrical; the flowers are rather large, lateral, solitary, of a pure white, tinged with greenish yellow on the spur; they measure about two inches across. A not very showy species. (*Bot. Mag.*, 4982.)

79. Begonia heracleifolia, *var.* nigricans. Nat. Ord. *Begoniaceæ.* Syn. *B. punctata.*—A handsome winter-flowering variety, the foliage of which is also strikingly pretty. The flowers are borne in a large panicle, the petals are nearly white, and the broad wing of the seed-pod, rose coloured; the seed-pods are light green, forming a delicate contrast. The foliage is deeply palmate, the ground-colour a deep, clear green, blotched with black on the margins of the lobes, which are usually seven in number. (*Bot. Mag.*, 4983.)

80. B. Griffithii. Nat. Ord. *Begoniaceæ.* A decidedly beautiful species, with rich, handsome foliage, probably a native of Bhotan, and named after the late Mr. Griffith. The leaves are obliquely cordate, and large in proportion to the size of the plant, measuring near six inches long and four in breadth. Their ground-colour is a deep, rich green, beautifully variegated; the centre and margins blood colour, having a broad, pale green, almost circular band between them. The thick scape rises from the rhizome, bearing large flowers,

internally white, tinged with blush on the outside, but few in number. It blossoms in the stove in the winter and spring months, and is a decided acquisition to this popular tribe. (*Bot. Mag.*, 4984.)

81. **Thunbergia laurifolia.** Nat. Ord. *Acanthaceæ.*—This fine plant has been introduced to our notice from seeds which were raised by Mr. Ingram, of the Frogmore Gardens; also from others which were received from Dr. Thompson, that were collected in the Malayan peninsula, and since bloomed at Kew. It flourishes well in the stove, being a climber of rapid growth; and flowers at various seasons of the year, and not unfrequently in early spring, forming a handsome object. The flowers are borne in terminal, axillary racemes, each measuring three inches in diameter, a clear porcelain-blue colour, with large sulphur-white throat, around which the blue is a shade deeper. It is a much-branched, climbing shrub, with glabrous foliage, about six inches long, oblong-lanceolate, and acuminate. A splendid species, deserving a place in every collection. (*Bot. Mag.*, 4985.)

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NEW AND SELECT GARDEN HYBRIDS.

RHODODENRON CLOWESIANUM (Rollisson).—A hardy variety, of very free-flowering habit. The blossoms are of excellent shape, pure white, the upper petals strikingly marked with dark spots.

44. **Rhododendron magniflorum** (Rollisson).—The blossoms of this handsome plant are of immense size, their colour lilac-purple, tinged with red; the upper petals are beautifully spotted with greenish brown; the trusses of bloom of a magnificent size, and foliage large, as well as handsome. It is valuable not only from its blossoms being so large and showy, but also on account of its being a very hardy, late-blooming variety.

45. **Gesneria Miellezii.**—Some idea may be formed of this pretty hybrid when we say it is more handsome than *G. Donckelaerii*, figured in the *Cabinet*, for March, 1855. The flowers resemble in shape those of *Gloxinia erecta*, of a lilac-purple colour, with a white throat.

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REVIEWS.

An Analysis of the British Ferns and their Allies. By G. W. Francis, F.L.S., etc. Revised and enlarged by Arthur Henfrey, F.R.S., Professor of Botany, King's College. London: Simpkin and Co, New Edition, 8vo. cloth, 5*s*.

We are glad to see an improved edition of this excellent little work, under the able superintendence of Professor Henfrey. The additional illustrations render it more complete and acceptable to the student. It contains a great variety of information concerning the most attractive department of cryptogamic botany, and we therefore would recommend this work to those who are in want of a good book on British Ferns, Club Mosses, etc. It is published in a cheap form, and yet contains excellent delineations of nearly sixty species.

A Natural History of British Grasses. By E. J. Lowe, Esq., F.R.A.S., etc. 8vo. Monthly parts, 1*s*. London: Groombridge and Sons.

A work of this nature, at a price which would place it within reach of every one, has been for a long time required, and we are glad to see Mr. Lowe has taken up the subject. The first two numbers of the work are before us, and we can justly assert that the plates are very faithfully as well as excellently executed.

No. I. contains coloured figures of *Anthoxanthum odoratum*, *Nardus stricta*, *Alopecurus pratensis*, *A. ovatus*, and *A. agrestis*. No. II. is embellished with plates containing *Alopecurus bulbosus*, *A. fulvus*, *A. geniculatus*, *Phalaris canariensis*, *P. arundinacea*, *Ammophila arundinacea*, and *Phleum pratense*..

The work is dedicated by permission to Dr. Hooker, and altogether is got up in a very neat style; we wish it every success.

FLORICULTURAL OPERATIONS FOR JUNE.

IN THE FLOWER GARDEN.

General Operations.—*Baskets, vases, aud clumps* may be filled with Geraniums, Fuchsias, and greenhouse plants. *Bedding plants*, those that require it, may now be pegged down to cover the beds and make dwarf plants, as *Verbenas*, *Petunias*, *Heliotropes*, etc. Water fresh-planted beds, a good start being very advantageous. *Beds and borders*, trim and dress; attend to recently planted. Water and stir the soil in dry weather. *Edgings*, clip *Box*, and repair vacant places. *Fibrous-rooted hardy herbaceous plants* may be propagated by cuttings; shade, and attend to watering. *Grass, lawns*, etc., mow, roll, and trim the edges. *Gravel*, roll, sweep, and weed frequently. *Greenhouse plants out of flower*, set in a shady place out of doors. *Herbaceous plants*, see that they are properly named, and have sticks to each requiring it. *Hybriizding*, let attention be given to obtaining new and improved varieties. *Insects and grubs*, keep down and destroy all that are injurious. *Leaves and stems*, dead or decaying, remove. *Liquid manure* may be given to most choice things out of doors; pits and lights, paint and glaze. *Seeds*, gather as soon as ripe, in dry weather. *Sweeping*, attend to. *Top-dress* plants coming into bloom. *Water* may be given early and late, especially to newly removed plants, and in dry weather.

Cultural Department.—*Alpines and rock plants*, similar treatment to that advised last month may still be pursued. *Anemones*, save seed, selected from the finest semi-double varieties; take up as the leaves wither. *Annuals*, sow for autumn bloom. *Auriculas*, place in the shade under a north wall on ashes; keep regularly supplied with water. Prick *seedlings* in shallow pans or boxes. *Biennials and perennials*, prick out seedlings. *Bulbs* require their offsets removed; dry and place in store.

Autumnal Crocuses, Colchicums, etc., may be taken up or planted. *Carnations and Picotees*, stage them, and attend to as directed last month; bandage flowers so that the buds do not split open; make layers, and prick out seedlings. *Chrysanthemums*, re-shift into forty-eight pots, using a compost of good fibrous loam, cow-dung, and a little sand. After potting, plunge nearly to the rim in ashes, or in the border in an open situation, or they will be drawn up weakly; attend to them with soft water, giving liquid manure twice a week; if permitted to become dry, the leaves are apt to fall off, and produce naked plants. The leading stem of any plant desired to be bushy, and not stopped last month, must be done now, in order to furnish side shoots properly, to supply their blossoms in due course. *Cyclamens*, transplant. *Dahlias*, the plants being so well prepared before planting out, will soon be established, and such as are about eighteen inches high must have the top of the main stem stopped, in order to induce the production of side shoots and that the plants may be bushy and robust, they will bear finer flowers in proportion; add larger stakes as they increase, and secure the side branches. Loosen the surface-soil around the plants, or mulch it with manure, and sprinkle over-head, as well as water abundantly in the evening. *Fuchsias in beds*, should the weather be very dry, water well with liquid manure; the roots should never be allowed to become dry. *Guernsey Lily*, transplant and remove as soon as the leaves are decayed; they do better, however, if removed not oftener than once in three years. When this is done, the offsets should be parted, and may be immediately replanted, or kept until July or August. *Hollyhocks*, attend to watering, place stakes as required, and prick out seedling plants. *Hyacinths*, take up and store away when done blooming. *Mignonette for winter*, take up as many plants from the garden as you require, let them be short and stocky, not more than two inches long. Pot singly into four-inch pots, and place them out of doors in the shade; they will only require occasional watering and stopping-in till August. The soil most suitable is loam, peat, and a little dung from an old hotbed, not sifted, and should have plenty of drainage. *Tree Mignonette;* when the plants have made considerable growth, repot into 48-sized pots, in the compost as above. *Pansies*, thin out side shoots to induce fine blooms, apply liquid manure occasionally, and shade; put in cuttings, sow seed, and transplant seedlings. *Pinks*, shade blooms in hot weather; put in pipings when the plants are in bloom; if later, the shoots will be too long for successfully striking root. Select a shady situation, and having dug over the soil, make it soft with water. Take off the pipings, strip off the two lower leaves, and put them in, three inches apart; cover with a hand-glass, which may remain on about three weeks, after which gradually expose them to the air. *Pæonies, Chinese*, will require a copious supply of liquid manure to encourage a fine bloom. *Polyanthes tuberosa*, as soon as flowers appear remove to open air (or drawing-room window). *Pomegranate*, at the end of the month look over the trees, and cut out such shoots as are running to wood; care must be taken to leave all blossom-shoots and spurs; repeat this operation about three times during the summer, and fine flowers will be the result; never use the knife during winter, except to remove dead branches. *Polyanthuses*, turn out of pots when the bloom is over, and place them in a bed on the north side of a low wall or evergreen hedge, planting them one inch deeper than they were in the pots; they will require shade and water, also tie up the leaves for a fortnight, when the plants will have made roots, from every eye under ground. In this situation they may remain till required for potting towards the end of August. *Ranunculuses*, copious waterings will be necessary, shade the beds from strong sun. *Roses*, keep down green fly, and look after grubs in the buds and remove at once; apply a top-dressing of well-rotted manure, also a liberal supply of water. Those in pots place out, and top-dress for autumn blooming. *Rose stocks*, should be staked, and attention paid to disbudding and regulating young shoots; water them freely, which will give strength, and cause the bark to rise well. *Salvia patens*, to prolong bloom and make bushy pinch down some of the shoots before flowering, which will produce laterals, to succeed the first crop of bloom. *Stocks, Queen*, when those sown last month are about three inches high thin out to about six inches apart, and afterwards to a foot, by taking up every other one, and plant in a similar border to that in which sown. *Tulips*, take up as soon as ready, and expose to the sun to dry them thoroughly. *Verbenas*, peg down so as to cover the beds. *Wallflowers, Sweet-williams, etc.*, put in slips to increase stock, under a hand-glass or under a north wall.

IN THE GREENHOUSE.

General Operations.—*Air*, admit freely to all parts of the house; the cooler the plants are kept, the longer they remain in flower; they are also not so liable to be attacked by insects. *Climbers* will require attention, to prevent their getting unsightly. *Cuttings* of nearly all kinds of greenhouse plants may be put off; May and June are the best months for this purpose. Many of the earliest struck will make plants for autumn and winter. *Decayed leaves and branches* should be removed; let neatness prevail everywhere. *Grafting* may yet be performed with such things as *Oranges, Myrtles, Daphnes, Camellias*, etc., although it is getting rather late; the scions should be taken from such plants as are retarded, where this is possible. *Plants*, many of the hardier plants may be set out of doors, in order to make room for fresh importations from the pits. *Seedlings* as directed last month. *Shading and stopping plants*, the same as before also. *Water*, give often and liberally; many plants may have dilute liquid manure where quick growth is desired.

Cultural Department in the Greenhouse.—*Achimenes*, those in flower will require plenty of water. *Azaleas*, when done blooming will require a moist atmosphere and rather a high temperature, to make their wood; the same of *Camellias*. *Cinerarias*, gather seed as it is matured, reduce the quantity of water as they go out of flower. *Oranges, Citrons, and Lemons*, thin out bloom, and impregnate where fruit is desired. *Pelargoniums* require plenty of air night and day; attend to watering and shade. See also last month's remarks. *Primroses, Chinese*, keep in a shady situation. *Roses in pots*, cut away the stalks as they go out of bloom; top-dress and place out of the house for an autumnal bloom; cuttings may be put in, and will soon strike.

IN THE STOVE:

General Operations.—*Air*, give liberally. *Atmosphere*, keep moist. *Baskets*, dip in water, or syringe. *Climbers*, train, and give close attention to keep them neat. *Cuttings*, put in where required, and pot off those of last month, if rooted. *Insects*, especially *red spider*, keep down. *Shade* plants in bloom, to prolong flowering. *Syringe*, use frequently. *Temperature*, fire-heat will be unnecessary. *Top-dress*, the whole stock may be gone through, and the pots washed. *Water* liberally and judiciously.

Cultural Department.—*Achimenes*, those in bloom will require a liberal supply of water; such as are intended to flower in mid-winter months should now be potted. *Amaryllis*, withhold water from such as are going out of flower, and remove from the house, to harden off. *Aphelandras*, place a few in bottom heat for winter decoration. *Franciscea and Gardenias*, when their bloom is over set them out of the house, in a cool frame. *Gesnerias, Gloxinias*, etc., put off cuttings, and repot young plants: the latter will strike well by leaves. *Ixoras* that are in bloom will require plenty of water, and occasional syringing, but avoid the bloom; young plants repot and tie out. *Orchids* in flower will retain their blossoms much longer if not kept at too great a degree of heat. Water liberally with rain or soft water, that has stood some time in the house. Shade should be given in bright sun.

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QUESTIONS, ANSWERS, AND REMARKS.

New Bedding Plants.—If you or any of the able contributors to your pretty little work were to give a list of the best and most approved new things for bedding purposes, each spring, I believe it would be very acceptable to your subscribers, and to none more so than to—*Amelia*. [We thank our respected correspondent for her useful suggestion; we had prepared a few descriptive remarks on the newest or best bedding plants, for our last number, but were obliged, through press of matter and standing communications, to omit them. The following plants are all *good:—Verbenas*, Duke of Cambridge, fine dark purple; Admiral Dundas, crimson, an excellent bedder; Miss Trotter, a splendid scarlet, which will be an universal favourite; Field Marshal, dark purple, a desirable variety; Madame Abdt and Jacquirita, two new continental varieties of excellent habit, being compact and very dwarf, colour rich mulberry or maroon; Madame Plantamour, light rose, with a dark eye, very handsome; Rosy Gem, this makes a capital bedder, bright rose; Standard Bearer, fine violet-purple, with a distinct white eye, makes a splendid object in a bed, being very conspicuous and free flowering; Victory, somewhat like the preceding, but a lighter colour, and must be well pegged down; Mrs. Foster, white; Noel, rich scarlet, with white eye and dark centre, a large trusser; Blue Bonnet, pale lilac-blue, a rather novel variety. The above are all free-growing sorts, and of distinct colours. In *Petunias* we would call attention to two continental striped varieties—Marquise de St. Innocent and Dr. Andry, both beautifully striped, carmine and white, the latter variety being the most showy; Springfield Rival, crimson, very good for an effective bed. *Scarlet Geraniums:* Indispensable makes a beautiful edging to beds of the other varieties, being very dwarf and neat in habit, and flowers abundantly; Attraction, a large trusser; Lady Downes, very free, rosy carmine colour, compact and dwarf; Princess Royal, bright rosy pink, dwarf, and very free blooming; Alma and Mountain of Light, are excellent variegated sorts, the former a great improvement on Flower of the Day, which it somewhat resembles. *Shrubby Calceolarias:* Orange Perfection, light orange, stiff compact habit, and abundant bloomer; Gold Finder and Erecta are two excellent yellows; Aurea floribunda, a very profuse-flowering variety, which every one should possess; General Pelissier, crimson, very fine; King of Sardinia, rich crimson-red; Cleopatra, pale sulphur colour, dwarf and compact, Rubra, light red; Yellow Dwarf, compact, clear yellow. In *Heliotropes*, Miss Nightingale is the finest light variety, and Beauty of Boudoir a capital dark; both of excellent habit.—ED.]

A FEW OF THE BEST FUCHSIAS.—*One who has profited by the Cabinet* will feel obliged to the Editor, or any subscriber, who will favour him with a list of a few of the best Fuchsias of the light and dark classes.—*Truro.* [The following are all of first-rate merit:—Queen Victoria, crimson tube and sepals, reflexed, with a clear white corolla. Queen of Hanover, fine pure white tube and sepals, carmine corolla. Clio, white, with ruby-scarlet corolla, free bloomer and stout flower. Mrs. Story, clear white corolla, with scarlet tube and sepals; well reflexed, fine. Venus de Medici, tube white, sepals light pink shaded, corolla large, violet-blue, distinct. Duchess of Lancaster, tube and sepals white, corolla rosy violet, pretty and free flowering. Maid of Kent, white, reflexed, with a plum-coloured corolla. Emperor Napoleon, deep scarlet-crimson tube and sepals, well reflexed, with a deep violet corolla, a large fine waxy-looking flower. Beauty of the Bower, scarlet, with a dark purple corolla, reflexed, fine. Donna Joaquina, scarlet-crimson, tube very short, sepals reflexed, corolla violet-blue, distinct and fine. General Williams, stout tube and sepals, reflexed, bright scarlet, corolla violet-purple. ED.]

DRYING SUCCULENTS FOR THE HERBARIUM.—I believe I have hit at last upon the right way of drying succulent plants, and such as are apt to come to pieces; and if nobody has thought of it before, it is really worth telling you. I had previously tried hot water, but that made the specimens mouldy; then a hot iron, but that is tedious, and it spoils the flowers; pricking the leaves all over with a penknife or a fork, so as to let the juices escape, is a great assistance in drying Orchids and Hoyas, but the specimens look unsightly after it; and chloride of calcium papers are too much trouble, except in the case of pet specimens. I now simply put the plants into a large bottle, with weak spirits of wine, for a day or two, which kills them effectually, and makes them dry almost as quickly as other plants.—*James Motley, Esq., Benjarmassin, Borneo.*

THE LOWEST TRIBES OF VEGETABLES are not only minute, but very simple in their structure. The blue mould found in bread and other farinaceous articles of diet, when examined by the microscope, will be seen to consist of a number of upright stalks, surmounted by a spherical ball at the top. This mould is in fact a species of fungus, and the round heads contain innumerable small black seeds or sporules, which, when the plant has arrived at maturity, burst from their coverings, are scattered about, and floating through the atmosphere, are ready to fall upon other pieces of bread, and grow up into fresh fungi. If an apple is cut across, and allowed to remain in a damp situation for a few days, the surface will also be covered with a mould of a similar character. The fungi here have even more of the arborescent form, and approach somewhat to the mosses. The grey lichens which so abundantly incrust rocks and stones are also simple vegetables, produced from a small seed, which, fixing itself on the flinty rock, by means of a tough mucilaginous juice, becomes the centre from whence others radiate, till a large circular patch is produced. Mosses and ferns are vegetables somewhat more complicated; and hence we ascend to herbs and shrubs, the towering palm and the majestic oak of the forest.

Standard Ornamental Shrubs.—When grown in tubs or ornamental boxes, and placed along the sides of a straight, broad walk, at intervals in the flower garden, or terrace, they have at all times a pretty appearance. This is more especially the case with the Laurustinus, which flowers from November to May; the plants may be formed by training up a single stem, divesting it of side shoots as soon as they appear, and when high enough the head will be readily formed. The Laurustinus, when in bloom, far exceeds the orange tree, the numerous heads of waxy white flowers expanded and the red buds of those not open have a charming appearance. Standard Rhododendrons may be formed in the same way, which will come into bloom when the Laurustinuses are going out. The Bay, also, makes one of the best standards, delightful alike for its handsome and finely scented foliage. Arbutuses in bloom and fruit, and red and yellow berried Hollies are treated the same. *Cotoneaster microphylla*, *buxifolia*, and *rotundifolia* bear a profusion of white blossoms and pretty red berries, which, with the Hollies and Arbutuses, make beautiful objects throughout the winter.—*W. Green.*

Amaryllis Belladonna.—These bulbs are very hardy, but to flower them well two things should be kept in mind, which are essential—a strong growth of the leaves, and perfect rest from midsummer to their period of flowering in September. If the leaves sprout early, and are damaged by severe frost, so that there is not a vigorous growth in spring; or if they are preserved green by a wet summer, after the period of rest; or if they have not moisture in September to promote the blossoming, it will fail. In pots, it is very easy to regulate these points; but in the open ground, it can only be done by putting a glass covering or awning over the bulbs, so as to keep off the rain in a wet summer. A south wall promotes the drying of the roots, and they very seldom flower well in the middle of the garden.—*Paul W.*

Tussilago fragrans.—I have grown this plant for some years; and although it is not often seen, I know of few things that can afford so grateful a scent at the time of year when it is in flower. At the back of my house I have a sloping sandy bank, which I prepared for the Tussilago, putting plants in, nine inches apart, in June. The whole of the bed I covered with sandy loam. They have done well; with no treatment except an occasional stirring of the soil, to keep down weeds. They flower from October (and by the help of a barrowful of leaves, thrown over some of them to retard their bloom) until the commencement of spring.—*Rusticus, Derby.*

Linum grandiflorum rubrum.—This most beautiful and showy annual has generally been considered to be difficult to raise from seed, if, however, treated in the following way it will be found to succeed well. Soak the seeds in lukewarm or tepid water for about twenty-four hours, and when taken out rub them dry with a soft cloth, in order to clear off all the glutinous or gummy solution which surrounds the seeds; they may then be sown in the open border in the same way as any of the hardy annuals. If, however, it is preferred to sow in a frame and transplant, the plants should be pricked out in the open ground when quite young, and the same treatment followed as is pursued with the *Rhodanthe Manglesii.*—*E G. H.*

Hydrangea involucrata, var. flore pleno.—All the species of this beautiful genus are welcome in our gardens. Every one knows the Hortensia (*H. Hortensia*), the first species introduced to Europe. This elegant shrub was received from China, at the Royal Garden of Kew, in 1790, and from thence plants were obtained by some French cultivators, by whom it was soon extensively distributed. The plants produced at first only small and few flowers, in consequence of its proper treatment being imperfectly known. But when subsequently they were grown in a peaty soil, and freely supplied with water in the period of their vegetation, they soon assumed a very different appearance, and their real beauty was discovered. This fact alone might teach us to abstain from pronouncing a decided opinion on the merits of a newly introduced plant before the proper method of treating it has been proved by experiment. Many species of the same genus have since then been introduced, but these are not so beautiful as the old one. Their umbels are smaller, and the blossoms are less highly coloured; moreover, with the newer sorts, the large unfertile flowers are less numerous than in the old species, the umbels of which are almost compact. This monstrosity is apparently the result of long experimental culture in the Chinese and Japanese gardens, and it is scarcely to be doubted that ultimately the smaller flowers will be made to bloom as large and as profusely as the others. The beautiful species which has called forth these observations would seem to confirm this supposition. Its unfertile exterior flowers are double, of a bright rose colour. According to Siebold, who, however, does not appear to have introduced living plants of it, it grows on the highest mountains of the island of Niphon and Sikok (Japan), where it flowers during the months of July and August. It is grown plentifully in the gardens of these parts, and forms a handsome plant, with a stem about three feet high. According to some travellers, there are four varieties of it; one lilac, the others with flesh-coloured, yellowish, and rose-coloured flowers. The leaves are opposite, rounded at the base, or nearly heart-shaped.—*Van Houtte's Flore.*

Rise of Botanical Science.—At the revival of learning in the fifteenth century, the botanical knowledge of the ancients began to be available in the language of the original treatises; and in the following century, the Germans commenced original inquiries into the science, and first began to illustrate their treatises by wood engravings of the different plants. The first work of this kind was written by Otto Brunfels, a native of Strasburg. To this succeeded, about the middle of the sixteenth century, the work of Gesner, a professor of Zurich, in which the first attempts are made at a classification and systematic arrangement of plants, founded chiefly on the characters of their flowers. The taste for botany, now excited, began to spread throughout the chief states of Europe. Kings and nobles engaged in the study, and gardens were established for the cultivation of the most rare and useful productions of the soil. We are principally indebted to the establishment of learned societies, in the seventeenth century, and to the invention of the microscope, for the first attempts at a more minute examination of the structure of plants. In the Royal Society of London for the promotion of science, which was liberally supported by Charles II., several philosophers occupied themselves with the dissection and microscopical examination of plants. Of these, the most distinguished was Nehemiah Grew, secretary to the Society. His discoveries are recorded in his elaborate work, the "Anatomy of Plants," illustrated by numerous engravings. In it we find the first notice of the twofold sex of plants, which doctrine he had learned from Thomas Millington, a professor in Oxford. Malpighi and Leuwenhoeck also distinguished themselves as investigators of the minute structure of plants; and the same subject was ardently pursued by several members of the French Academy of Sciences, founded in 1665. The doctrine of the sex of plants, which had been obscurely hinted at by Grew, was experimentally illustrated by Bobart, and fully established by Ray.

Tulips when raised from seed require a peculiarity in management, which would not readily occur to any cultivator, who was not either a vegetable physiologist, a reader of books on florists' flowers, or a tulip-grower of great experience. The young bud of the tulip is formed on the radicle which descends from the seed; and when the seed is sown in a bed or in a deep pot of light free soil, the radicle will often penetrate to the bottom of the pot or bed, and scarcely produce any bulb at all. The same thing takes place with the different species of bulbous Iris when raised from seed, and, to a considerable extent, with seedling bulbs of every kind. In order to prevent this, and to cause the radicle to exhaust itself in the form of a bulb, instead of in the form of a long slender root, the seeds should be sown in pots or pans, not above three inches or four inches deep; or, if in beds, a bed of slates or tiles should be formed three inches or four inches beneath the surface. When this is properly attended to, the bulbs produced by seedlings the first year will be as large as those of three years' growth, where no stop was given to the descent of the roots.—*E. L.*

Tuberoses.—Last season I had a nice display of these things, which I should wish to be more commonly grown. Some experience a difficulty in blooming them. I treat them thus:—I plant the bulbs in small pots, and place them in a hotbed frame; when the flower-spike has pushed about six inches, they are turned out of the pots, under a south wall, in a situation protected from strong wind, where they come into bloom in July, and continue for a long period. Where there is the advantage of being grown successfully near a sitting-room window, the delightful perfume is most agreeable. To grow them vigorously they should be planted out in a compost of equal parts of well-rotted manure and loam, to the depth of a foot or more, and on a dry substratum. When growing they require a good supply of water.—*P. P.*

Acacia Julibrissin.—The Silk tree, or the *Durukhti ubrishoon* of the Persians, forms a drooping tree like the willow; the flower has silky fibres, of a delicate pink colour, and would resemble a swansdown puff tinged with rose. It sends forth a most fragrant perfume, and its name bespeaks its appearance. It thrives in Teheraun in the open air, the thermometer ranging between 16° and 110° Fahrenheit; but it does not succeed so well at Tabriz, where the temperature is colder and more variable. It grows wild in the forests bordering the Caspian Sea. There is one in the garden of the Prince Royal at Tabriz, and another in possession of the English officers there, who are obliged to protect it from the winter cold.—*Keppel's Journ. from India.*

Pelargonium tricolor, grafted on the top of tall stems of *P. cucullatum* or *P. zonale*, forms very handsome heads, which keep in bloom all the summer, producing its crimson and white flowers in abundance.—*W.*

On Grafting the Moutan Pæony.—The method I practise for multiplying the *Pæonia Moutan* is as follows:—In any time from the beginning of September to the middle of March, I select some good tubers of *P. officinalis*, or any other hardy herbaceous kind, and take off cuttings of *P. papaveracea*, or whichever of the tree kinds I wish to increase; I then slit the tuber from the crown downwards about two inches, form the scion like a wedge, insert it into the slit of the tuber, and fit the barks on one side as exactly as possible, binding them well together with good bass, over which I put one turn of copper wire, to prevent the parts from separating after the bass is decayed. They are then put into pots deep enough to allow the mould to cover the top of the tuber, placed in a cold frame or pit, kept close, rather dry, and shaded from the sun for the first month, and from frost during winter. When they have perfected one season's growth, I plant them out and treat them like established plants.—*J. Nash.*

Culture of Trilliums.—Few can deny the beauty of this tribe, and also their curious form; the ease with which they may be cultivated renders them well adapted for every garden. I find fifteen species mentioned in the "Hortus Britannicus" as being grown in English gardens, but I doubt very much whether so many distinct kinds are to be found here. Seven species include all that I am acquainted with, namely, *Trillium sessile*, *erythocarpum*, *pusillum*, *cernuum*, *erectum*, *pendulum*, and *grandiflorum*. The most suitable treatment is the following, and is very simple; they bloom freely with me every year, in April and May, and are a great ornament to my limited garden. They grow freely in the open air, requiring no covering in shady places, and a mixture of marsh or heath soil, with river sand, promotes their beauty better than any other soil, and in this they will in a few seasons form handsome bushes. The seed is ripe in August, and if sown directly they will come up the following year. They may be sown in pots, or in a shady peat border, and the most of the seedlings will blossom the third season. These plants add much to the attraction of a spring nosegay, and I should wish to see them oftener than one does.—*Semper Idem.*

Guernsey Lilies.—Of this beautiful tribe of plants much has been said, and the great beauty of the far-famed Guernsey Lily is a recognised fact, but it is sunk into comparative insignificance by the varieties *coruscans*, *Fothergilii*, and *venusta*. The blood-red crumpled petals of the one and the vivid vermilion of the other are exquisitely beautiful; whilst the last, when contrasted with the original, is a larger flower, and of a much more brilliant rose colour, the flowers having the appearance of being spangled all over with gold dust when the sun shines upon them. The varieties all thrive well in a light sandy loam, and require encouragement and protection during the winter months, with an abundance of air, so as to perfect the development of their foliage. Their usual season of blooming is the latter end of August or commencement of September, previous to their starting into growth. The following are some of the best varieties :—*Nerine coruscans*, crimson-scarlet, the edges of the petals are beautifully undulated ; *N. flexuosa*, delicate shade of rose colour ; *N. Fothergilii*, vermilion-scarlet, splendid variety : *N. humilis*, delicate lilac, flower prettily undulate, a dwarf grower ; *N. sarniensis*, the common Guernsey Lily, rose ; *N. undulata*, small lilac-rose ; *N. venusta*, larger flower, spangled rose, a splendid variety.—*B. Saunders, St. Helier's. Jersey.*

Wellingtonia gigantea.—I have read the description of the "Wellingtonia," as found at the Mammoth Grove, California ; in most respects it gives a correct and clear account of those great natural wonders, but I think I can furnish you with some particulars that you may consider interesting. Mr. Lane (brother-in-law to Lord Exmouth) and myself, while making a tour in the interior of California in March last, visited the Mammoth Grove, and found our anticipations more than realized by a sight of that magnificent grove of trees. We had not the means of measuring the height of any of them but the one that had been cut down near the inn. We also counted the rings on the stump of this tree, from the centre to the outer edge on one side, and found them to be 1568. My friend and myself ascended, to the height of 120 feet, the tree that the bark has been stripped from, by the aid of stakes driven into the tree. The first branch is some feet above this height. The tree did not appear to have suffered from the loss of its bark, although more than two years had elapsed since it was stripped. We picked up several cones, principally from the "Mother of the Forest" (the tree that the bark has been taken from), part of which I brought to England, and gave to Mr. Pince, of Exeter, who has now in his nursery a large number of thriving young plants from them. I also obtained, on my return to San Francisco, a lithographed view of those trees, which is most accurate, and which I forward to you with the description. I have also a small branch with cones attached to it, from the "Mother of the Forest," which was cut off by a rifle-ball—the only way to get at it.—*Jno. Kelly. Gard. Chron.*

Ranunculuses.—At present the appearance of Ranunculuses is strong, and very favourable to vigorous bloom. As we are within a very short time of the flowering season, I will shortly supply you with some notes on varieties derived from this year's bloom.—*Carey Tyso.*

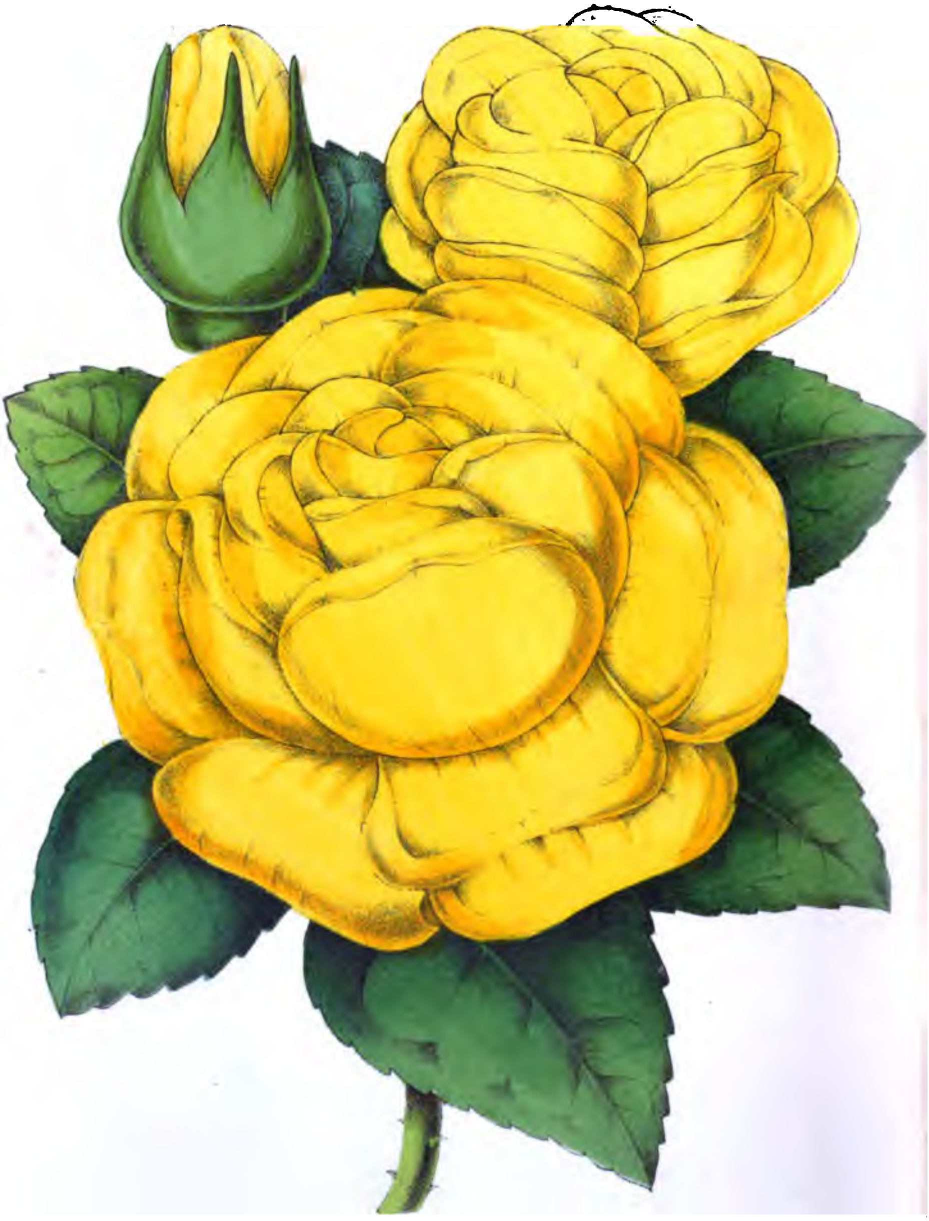
Treatment of Lachenalias.—These bulbs, which are rather small in size, should be planted, two or three in a pot, in September ; select good sound bulbs for blooming, and pot the small offsets by themselves. The soil should be a mixture of peat and sand, about three parts of the former to one of the latter, and a small quantity of leaf-mould. The pots should be well drained, and when the bulbs are planted, remove them to a frame where they will have light, and not be exposed to the cold autumnal rains. Keep them in this situation until November, or until the nights become quite frosty, and supplying very little water. At that time they may be removed to the parlour or to the greenhouse, placing them in a light situation, and watering them cautiously until they begin to grow. In February the flower-stems will begin to appear, when a more free supply should be given, though still with care ; the flower-stems will now shoot up, and in the course of a few weeks will be beautifully in bloom, remaining so for two or three weeks, or much longer, if they are kept in a partially shaded place. In May, when the foliage begins to turn yellow, the pots may be removed to the open air for a few weeks, when the bulbs should be taken out of the pots and laid away in a dry, cool place, there to remain until wanted again for planting the following autumn.—*J. H.*

Dwarf Trees.—There are many miniature trees, which typify their more gigantic brethren of the forest, that may be introduced with advantage to grounds of limited extent, and which, after many years' growth, arrive at only a few feet elevation. Of Elms there is *Ulmus viminalis*; Maples, *Acer Creticum* ; Beech, *Betula nana* ; Alder, *Alnus glutinosa oxycanthæfolia* ; Chestnut, *Pavia flava* ; besides which are others less known, as *Tilia laciniata* ; *Pterocarpa Caucasica*, a type of the Walnut ;

termining who should be the recipients of valuable plants too few in number to be made a subject of general distribution, and the Council intend to ascertain experimentally whether this suggestion will work. In the meanwhile, in addition to other means of satisfying the wishes of the Fellows, communications have been opened with Peru, Cuba, and Southern Australia, whence it is expected that supplies of seeds will be received. Arrangements of this nature with distant countries cannot, however, be completed without considerable delay.

The annual election of Council and officers was then proceeded with, when the Lord Bishop of Winchester, Mr. Wentworth Dilke, and Mr. J. R. Scott were announced as having been elected into the Council in the room of Sir Morton Peto, Sir Joseph Paxton, and the Rev. Mr. Hawkins. His Grace the Duke of Devonshire, Mr. Wilson Saunders, and Dr. Royle were reappointed President, Treasurer, and Secretary for the ensuing year, and Mr. Leach and Mr. R. Glendinning were elected Auditors.

May 5th.—Rev. L. V. Harcourt in the chair, forty-three new members were elected. Of plants in flower of different kinds, there was a good display, among which was a magnificent collection of Orchids from Messrs. Veitch, comprising Dendrobium speciosum, the charming D. Farmeri, D. Pierardi, the rare Uropedium Lindeni, with long flowers, looking like Lady's Slippers turned inside out; Trichopilia coccinea, Cattleyas, Vanda suavis, the scarce Odontoglossum Pescatorei, and other kinds, all well grown and beautifully flowered. Mr. Pilcher, gardener to S Rucker, Esq., sent Burlingtonia fragrans; the new Chysis Lymminghi, with pink-tipped petals, a rose-streaked lip, and yellow throat, and a handsome new Trichopilia, of a brilliant rose colour. Mr. Snow, gardener to Earl De Grey, sent a handful of Smith's Yellow Noisette Rose, pretty, but inferior to the yellow, shown at last meeting. Mr. Braid, of Hendon, had Alonsoa Warcsewiczi, Boronia Drummondi, and a white pink-spotted Pelargonium, called Blanchefleur, reported to be valuable for forcing. Messrs. E. G. Henderson, sent a variegated-leaved Dahlia; Mr. Gaines a very large-flowered Amaryllis, called magnifica; Mr. Turner, a collection of Auriculas, consisting of some of the best sorts; Messrs. Henderson, of Pine-apple Place, greenhouse plants, consisting of buff-coloured Rhododendrons, several Eriostemons, a bush covered with flowers of Elæocarpus dentatus, Boronias of various kinds, etc. Messrs. Cutbush also contributed a collection of greenhouse plants, in which were a purple semi-double Azalea, loaded with blossoms; Hypocalymma robustum, a shrub, with spikes closely set with pink flowers, like a Hawthorn; Statice Holfordi; the orange-flowered Erica vernix, and others. From Mr. Forsyth, gardener to Baron de Rothschild, came beautiful stove and greenhouse plants, among which, Erica lutea was especially striking; also, some select variegated-leaved plants. Dracæna lutea, a drawing of Farfugium grande, the very handsome Coltsfoot-like plant, with yellow blotched leaves, figured by us, and specimens of rice-paper, with a plant of it, came from Mr. Glendinning, of the Chiswick Nursery. Messrs. Veitch showed a new crimson-flowered bulb from California; the brilliant red-flowered Correa cardinalis; Fuchsia Dominiana; Nicotiana fragrans, a kind of tobacco, with long tubular blossoms, like those of a white Petunia; Rhododendron Dalhousieanum, quite a tree, loaded with greenish yellow flowers; the charming R. javanicum and jasminiflorum, and a new species from Moulmein, with pure white blossoms measuring five inches across, and crimped like Azalea crispiflora. This we regard as a valuable acquisition to greenhouse varieties of this genus. Messrs. Veitch also showed two boxes of cut hardy Hybrid Rhododendrons—one filled with pale, and the other with crimson sorts, all beautiful. From the Duke of Northumberland's at Syon, also came cut Rhododendrons from the open ground, where they had no protection. Mr. Ellis, gardener to Dr. Bunce, of Woodford, sent four well-grown Lycopods and Ferns; also as many Pelargoniums. Mr. Allnutt furnished a fine bush of Camellia Sasanqua rosea, twelve feet high; and Mr. Luscombe, of Kingsbridge, Devon, cut blooms of Cantua dependens; the specimens exhibited were from an open wall, but even in Devonshire the plant is found almost too tender; as a greenhouse plant it is difficult to cultivate, and therefore seldom seen. Amphicome Emodi was furnished by Col. Fairhead. The Gardens of the Society supplied three kinds of Chinese Azaleas, three Achimenes, Eutaxia myrtifolia, Ceanothus papillosus, Rhododendron formosum, and some other interesting things. Of fruits and vegetables, there was an excellent display.



ISABELLA GREY.

The Floricultural Cabinet.

JULY, 1857.

ILLUSTRATION.

ROSE, ISABELLA GREY (TEA).

THE charming Rose selected for our present illustration is one which will be hailed with pleasure by all growers of this lovely tribe. In addition to its possessing all those qualities that are desirable in a Tea Rose, it has the additional recommendation of being a very free-growing variety, bearing its rich golden blossoms in great abundance, while its constitution is vigorous. The flowers are large, full, and of a rich golden yellow, not partaking of the usual numerous tints of buff, lemon, and salmon, which have hitherto been so common in this class. It appears to have been raised from seed by a Mr. Grey, in South Carolina, with whom it bloomed most profusely, and although exposed to the great heat of that climate, appeared to suffer no injury, and in this country it has also kept its character. As noticed by us in a late number, a plant was exhibited at the Horticultural Society's rooms last April, having forty fully expanded blooms, diffusing a rich fragrance, and exciting considerable notice.

The old Double Yellow Rose, so remarkable for its shy-flowering qualities, will now be entirely superseded by the present beautiful variety, which bids fair to become a universal favourite, both as a pillar Rose, or for planting in the conservatory. For its culture we refer our readers to an article on the Tea Roses in the present number.

ON PHLOXES IN POTS.

BY MR. J. SMITH, OXON.

BEING a devoted admirer of these popular flowers, and having had considerable experience in the management of a large number of plants annually, a few hints on the cultivation of Phloxes in pots may perhaps prove acceptable for the *Cabinet*. I must premise that, in order to have Phloxes in perfection, they should be renewed from cuttings every three years at least, whether for the border or pot culture. Early in March I select the most healthy and vigorous plants struck last season, and pot them in large-sized pots, in rich loam, with a little sand and manure from an old hotbed, trimming the plants to a couple of shoots. When the stock is potted off. I make a selection of all the dwarf-growing kinds, which I place near the glass in a cold pit; the taller sorts are sunk out of doors in a sheltered situation. The plants under glass require air freely, and attention is necessary not to let them become too dry for want of water, but, after their growth has advanced, they may be stimulated by a little weak liquid manure given every other or every third time. This contributes to the size of the corymbs, as well as to the general vigour of the plants. As soon as they begin to show flower, they may be introduced into the greenhouse, and with judicious management they may be kept in succession from early in summer to late in autumn, making a fine display. To have large plants; I plunge them out of doors when bloom is over, and cover them through the winter with two or three inches in depth of ashes; in spring I take them up, repot and trim them to five shoots. In repotting, I make it a rule not to reduce or injure the ball of earth, which I find the plants will not bear with impunity.

REMARKS ON THE TEA ROSE.

TEA ROSES require rather more care in their culture than most others; being naturally somewhat delicate, a little protection is necessary in the depth of winter in our climate, which is also the case even in the gardens of France and Northern Italy. They will, however, bear a considerable degree of cold, where the soil is *well drained*, sustaining much more injury from the alternate freezing and thawing of a naturally moist soil. When a border is formed for the growth of Tea Roses out of doors, the first thing necessary is to provide a sufficient drainage, and for this purpose the soil should be removed to a depth of eighteen or twenty inches, and a layer of brickbats, lime-rubbish, or other porous material, laid at the bottom to at least nine inches in thickness. Over the drainage a foot deep of prepared compost is to be laid next, consisting of good loam and decomposed manure in equal proportions, to which a liberal allowance of white or river sand may be added. In this soil the plants will flourish remarkably, as they delight in a light rich soil. The bed may be made rather high with advantage, and where the natural soil is light, the incorporation of a sufficiency of manure will be all that is necessary. When winter has fairly set in it is desirable to afford a little protection from its severity, and nothing is more effectual perhaps than a few dry branches of the common wild Fern (*Pteris* *aquilina*), which may be stuck in and about the plants. Furze, or coverings of straw, may be used, however, keeping in view the fact that they ought not to be covered so close as to exclude the air altogether; a protection from the violence of hard frost is all that is required when the soil has been well drained. Many persons take their plants up at the setting in of winter, although, under the proper precautions, such attention is needless. The foregoing remarks apply more particularly to such plants as are grown on their own roots. Grafted or budded Tea Roses, when established, will in general brave our severest winters unscathed.

This class forms excellent subjects for the conservatory; here, trained to pillars, trellises, or over wirework, they form handsome objects, and few plants look more attractive than a well-grown and full-bloomed Tea Rose. Where space is limited, or from any cause it is desirable, the stems of the plants may be introduced into the house, the roots being planted in a border, properly prepared outside. The best stock for working Tea Roses on is perhaps *Rosa Banksiæ*, var. *Fortunii*, Mr. Fortune's white Banksian Rose; although the Dog Rose, or Blush Boursault, will answer almost equally well. For forcing and pot culture under glass, this class is without equal; worked plants force well, and do not require to be established one year in pots, for if potted in October or November, and forced in a gentle heat in January and February, a fine display will be made in March and April. The extreme beauty of their lovely blossoms and attractive foliage will well repay the attention they have received. When forced, and in a state of luxuriant growth, the Tea Roses have a peculiar delicacy and softness of appearance that charms every one.

Among the most distinct varieties known to be worth culture (for many varieties which do well in France will not succeed in our climate), are the following:—*Adam*, a fine Rose, of a beautiful blush colour, large and very full, of a delicious scent, and vigorous habit. *Devoniensis*, one of the best in this class; it possesses much hardiness of character, vigorous habit, a fine flower, pale yellow or sulphur; a most desirable kind, now well known; it excited considerable notoriety when it made its first appearance. *Princess Adelaide*, pale yellow, a large and full bloomer, possessing a good habit. *Gloire de Dijon*, figured already in the *Cabinet*; another extremely fine variety, pale buff, salmon, and rose; the blossoms are of immense size, and very full; this superb flower ought to be in the possession of every grower. *Elise Sauvage*, yellow, with an orange centre, very beautiful, of dwarf habit, and well adapted for forcing or pot culture. *Vicomtesse de Cazes*, yellow, with a copper tinge in the centre, very double. *Comte de Paris*, a superb, large, and full flower, clear flesh colour, and dwarf habit; a good forcing variety. *Bougère*, shaded rose, large and fine; one of the more hardy sorts in the Tea class. *Goubault*, bright pink, with a buff or salmon-coloured centre, very large and sweet scented; adapted more especially for pot culture. *Safrano*, a handsome buff, large, but rather a thin flower; its habit is vigorous. *Souvenir d'un Ami*, shaded rose and salmon, large and fine; a beautiful Rose, of vigorous habit, and succeeds admirably under glass. *Madame Bravy*, very double, cream colour, rather dwarf, but, like the former, does better in the house than out of doors, where the blossoms do not open well. *Niphetos*, pure white, sometimes pale lemon, very large, full, and sweet, of vigorous habit; a very delicate and beautiful Rose. *Princess Helene du Luxembourg*, light yellow, large and very full, a robust variety. *Souvenir d'Elise Vardon*, cream colour, with a rosy salmon or blush centre, large-sized blossoms, and robust habit. *Madame Villermoz*, a large flower, white, with flesh-coloured centre, very full, and of vigorous habit. *Smithii*, pale yellow, or straw colour, does best under glass, as the blossoms are not well perfected in the open air. *Triomphe du Luxembourg*, a superb, large, and full flower, coppery rose, vigorous, and an excellent variety for forcing. *Madame de St. Joseph*, a beautiful Rose, salmon colour, of large size and very double, more adapted for pot culture than in the border. *Prince Esterhazy*, light rose, very fine size and double, habit good.

In the above selection of kinds, such only have been enumerated as are among the choicest of the class, it being intended as a guide to those who have but a limited acquaintance with this charming section, though there are many other varieties of great merit.

HISTORICAL REMARKS ON THE TASTE AND STYLE OF ORNAMENTAL GARDENING.

BY HORTULANUS.

(*Continued from page* 154.)

ALMOST all the ancient country-seats in this kingdom were either manor-houses, abbeys, or castles belonging to the barons. The first were only superior farm residences, surrounded by enclosed orchards, meadows, and arable land; abbeys had generally kitchen gardens and orchards, and were surrounded with lofty walls and deep moats; the baronial castles were fortified places, with for the most part little space for gardens, if we except the terraces with a few beds of flowers. Regal palaces and many of the principal baronial establishments had also parks for game, and chases for deer. After the restoration of monarchy, in the person of Charles II., the gentry acquired a greater taste for parks and ornamental gardening, which, as already stated, was carried to a greater extent afterwards, by Kent, and his successors in the art of landscape gardening. During the reigns of William III. and Anne, the prevalent style in gardens, as well as parks, was a mere imitation of the Dutch. Examples of this were Hampton Court, Kensington, St. James's, and the gardens of the two Universities. Many of the avenues then planted still remain as evidences of the formality then in vogue. The fortified mansions of the nobles were altered, by pulling down and clearing away the outworks, and leaving the building on a naked lawn, removing the gardens and offices to a considerable distance, often a mile off, at the boundary of the park; cutting down or removing masses of trees, and making a winding approach. If woods were situated too near the house, their skirts were thinned, in order to give lightness to the interior and airiness to the view; if a bare mound appeared in view from the front, it generally had a clump of trees placed on its summit. A strip of what was termed "pleasure ground," consisting of a narrow gravel walk, bordered with shrubs, formed the communication between the gardens and house. Where water could be brought into view from the windows, it was made to assume the form of a square pond, or straight canal, and in either case was called "a sheet of water."

In the time of Henry VIII., when abbeys and monasteries were suppressed, they passed, through favour or purchase, into the hands of laymen, becoming houses of the richer class of yeomen, or country gentlemen of moderate fortune, remaining for a great length of time in nearly their original state; except perhaps so far as the filling up of a moat, or the pulling down of a wall or two, the grounds were kept for the use of tillage or the cattle, as they had before been used, and such of these residences as remained entire, to comparatively modern times, kept their character until the rise of a better era in the art of ornamental gardening, when the houses of small country gentlemen received a certain degree of embellishment. The hedges round the house were removed to extend the pasturage; evergreens flanked the buildings; trees hid the outhouses, ricks, and barns, being also planted in groups on the lawn, in the distant hedgerows, and corners of the fields, to give the whole farm a park-like appearance, from which this style received the title of "ferme ornée."

HORTICULTURAL SOCIETY'S EXHIBITION.

CONSIDERABLE interest and much speculation having been excited as to the style and character of the forthcoming exhibitions of the Horticultural Society at Chiswick, consequent on its reinstatement under new rules and regulations, the 3rd of June (the day fixed for the first exhibition under the new management) was looked forward to with no little excitement in the gardening world, mingled with some misgivings. We are happy to say, however, the result has proved so far satisfactory, that there is now no room for doubt on the subject; the former popularity of the Chiswick shows under the new *regime* is likely to be regained. The exhibition on the 3rd ultimo was a successful one, and indeed exceeded the expectations of numbers.

There were several novel features, which we look upon as decided improvements, such as the conversion of the large curvilinear conservatory into a pavilion for exhibition purposes for the more tender subjects, as Orchids etc., which were arranged on stages along each side, allowing space for a broad gravel walk up the centre. Another good improvement was the exhibition of the large pyramidal and other *pot Roses* placed on raised circular beds, bordered with turf, under a large tent on the lawn. There were also some beds of *Rhododendrons* in the same erection, and plenty of space allowed to view the collection with comfort. The next novel feature worthy of being recorded was the display of horticultural erections, implements, tools, and manufactures of every description, which is a step in the proper direction, and one that we have for some time advocated; among these, however, were a number of military tents with camp equipages, which we were unable to connect in any way with the peaceful pursuits of horticulture.

The grounds were kept up in good style, and the new American garden, recently laid out by Mr. McEwen, deserves praise. This gentleman has proved himself well worthy of the important trust he has undertaken, and is a most accomplished gardener.

Our report of the exhibition must necessarily be brief, but as many of the plants produced had been exhibited at the Crystal Palace, we refer our readers to the more lengthened report of that show, especially as concerns the new plants. Messrs. Veitch showed a *Cyclobothra*, from California, a frame bulb, of a deep golden yellow, somewhat in the way of *C. barbata;* also *Ceanothus Lobbianus*, from the same region, a very free-blooming, stiff, upright bush, somewhat resembling *C. papillosus*, bright blue; and a *Thibaudia*, with rosy red-coloured flowers, having a very waxy appearance, and white mouth. The same gentleman had some new *Rhododendrons*, including *formosum elegans*, a hybrid, bright rose, white centre, and maroon spots. M. Linden, of Brussels, had *Cyanophyllum magnificum*, a beautiful variegated plant, with large leaves, eighteen inches long, and six wide; *Bœmeria argentea*, with foliage a foot long, and half as much across, lead-green, mottled with bright green in the centre; two *Marantas*—one, *M. fasciata*, dark green leaves, with lateral stripes of bluish lead colour; the other, *M. pulchella*, marked with dark and light green, alternately. Mr. Bragg, of Slough, had a new seedling *Begonia*, of dwarf habit, reaching about a foot high, with thick, light glossy green foliage, the flowers free, large, and pure white, with which the yellow stamens contrasted well.

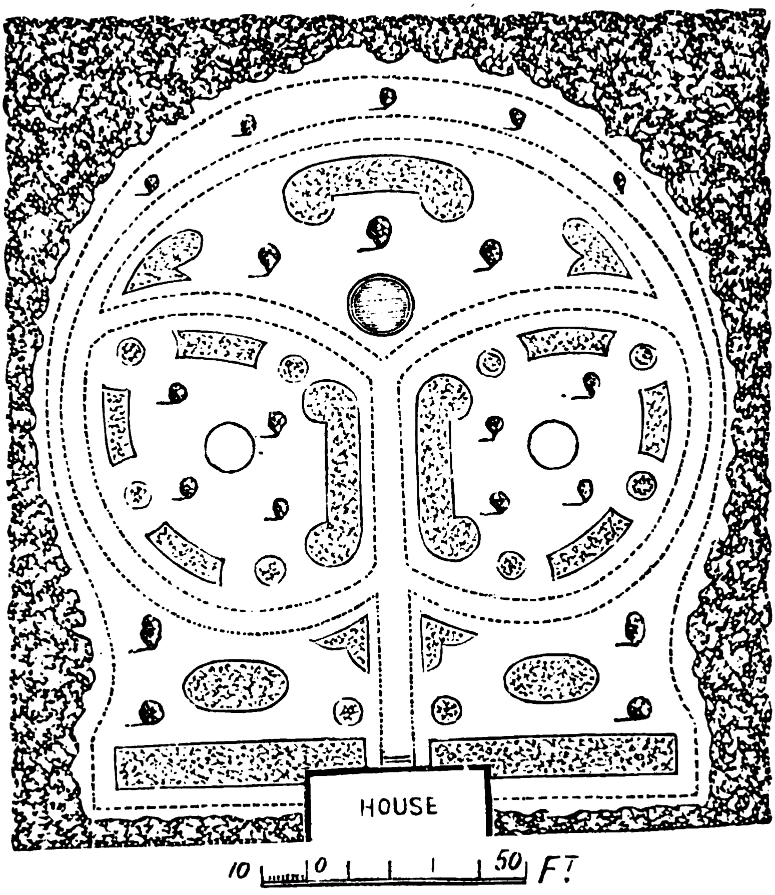
Of seedling *Pelargoniums* several were good ones—as *Bellona*, deep crimson upper petals, edged with scarlet, lower rosy red, with veined blotches of crimson, a showy flower; *Fairest of the Fair*, an abundant bloomer, of good habit, pure white, with a lilac-purple blotch in the upper petals, wants a little more even outline; *Mazeppa*

(Turner), deep upper petals, with a narrow edge of rosy scarlet, lower deep rose, with a large spot of maroon; *Belle of the Season* (Hoyle), very showy, upper petals deep crimson, shading off to scarlet, edged with white, lower blush-white, a good truster, but not first-rate form; *Linda* (Hoyle), upper petals deep maroon, shading, off to purple veins, and edged with white, lower white, with purple spots, distinct and showy. Of Fancies, Mr. Turner showed *Acme*, deep maroon-crimson, narrowly edged with clear white, a large pure white centre, good habit, truss, and form—it was awarded a first-class certificate; *Mrs. Turner*, brilliant purple-rose, with a narrow edge of white, and clear large centre, good habit, and free bloomer. There was also a good collection of *French Spotted Pelargoniums*, very attractive, but generally deficient in form; for decorating the greenhouse, however, they will be erelong more extensively cultivated.

There was a fine show of *Azaleas*, not generally such large plants as we are accustomed to see at exhibitions, but well bloomed. Of *Rhododendrons*, Mr. Standish and Mr. Noble had some beautiful varieties, which had a very pleasing effect on their raised beds. *Roses*, by Messrs. Lane and Son, Paul, and others, were very fine. Stove and greenhouse plants were in considerable numbers, and comprised some well-grown plants; the principal exhibitors were, among amateurs, Messrs. Dods, Green, Taylor, Barter, and Rhodes. *Orchids* were numerous, and exceedingly well-bloomed, fine-grown plants; the principal exhibitors in this class were Mr. Pilcher, Mr. Gedney, Mr. Williams, Messrs. Jackson and Son, Mr. Carson, Mr. Keel, Messrs Veitch and Son, and Mr. Parker. The plants remarkable for fine foliage were in good condition, from Messrs. Veitch, as also the collection of variegated plants from the same firm; as well as those of Messrs. Jackson and Mr. Salter, who showed a collection of twenty hardy sorts, some of them remarkably handsome, which will furnish matter for the *Cabinet* in a future number. *Ferns* were shown by Messrs. Parker, Veitch, and Jackson, which were generally well-grown, handsome plants, composing a fine bank, covered with their lovely fronds. *Lycopods* were more attractive than the Ferns, and in greater numbers, principally furnished by the foregoing growers. *Tall Cactuses*, some of them very fine specimens, and remarkably showy, were from Mr. Green and Mr. Mortimer. *Cape Heaths*, from Messrs. Peede, Cutbush, Rhodes, and Taylor, were well flowered. Some rare hardy *Conifers*, from Messrs. Veitch, included the *Wellingtonia*, *Thuja gigantea*, *Cephalotaxus Fortunei*, *Abies Hookeri*, and many other fine plants of the same highly ornamental and interesting class. Fruits were limited in quantity, but good on the whole. In order to do justice to the exhibition, we should be compelled to trench too largely on our pages; ample materials have, however, been afforded us for comment in future numbers of this Magazine.

DESIGN FOR THE GROUNDS OF A SMALL VILLA RESIDENCE.

BY. T. RUTGER, ESQ.



THE design accompanying these remarks is intended for the frontage gardens of a villa. It is requisite that but little be said in particularising its delineation, as the clumps, shrubs, pond, etc., tell for themselves. A remark may be necessary in regard to the two circles which are placed one on each side of the lawn, and are intended for circular pavements, whereon to raise pedestals for anything ornamental to be placed upon them that taste may suggest. A covered seat or alcove might be erected at the extreme end if desirable, with a branch walk to lead to it; garden seats may also be placed in any part of the grounds, where it may be thought they are wanted, and if placed on wheels they would be the more easily removed from place to place.

GRAND FLORAL EXHIBITION, CRYSTAL PALACE.

ON the 30th of May, the first grand floral fête of the season took place at this justly popular place of entertainment, at which there was a great assemblage of visitors, comprising a considerable proportion of the nobility, as well as of amateur and other cultivators.

The grounds were in the best possible order, and, together with the Palace itself, displayed the best taste and perfect management. The shrubberies were very judiciously planted with flowering shrubs, and had a very gay appearance: a few of the most conspicuous among them were some fine plants of *Weigelia rosea*, which we never before saw bloom in such profusion; many fine specimens of *Rhododendrons* of every shade of colour; some fine *Ghent Azaleas*, of all shades from yellow to scarlet; *Sulphur-coloured Cytisuses*, *White* and *Yellow Brooms*, *Double Pink* and *Scarlet Thorns*, *Laburnums*, *Gueldres Roses*, *Persian Lilacs*, and *Double-blossomed Whin*, intermixed with large patches of *White*, *Blush*, and *Purple Rockets*, *Erysimum Peroffskianum*, and other showy things, all combining to produce a delightful scene, to which a large mass of *Rhododendrons* and *Azaleas* in fine bloom, planted on a gentle slope, greatly contributed. Near to the *Rosarium* we noticed a plant of *Wistaria* (*Glycine*) *Sinensis*, grown as a standard, about six feet high, with a flat spreading head, measuring from eight to ten feet across. From the abundance of its bloom, not a leaf was to be seen; when grown in this style, and seen from below, its large pendent racemes of purple, Laburnum-like blossoms are seen to great advantage; it was an old grafted plant that had been well pruned-in annually. On the terraces we observed some very attractive beds, planted with large crimson *Wallflowers* in the centre, edged with a row of *Cheiranthus Marshalli*. A large mass of *Tree Pæonies* must not pass unnoticed; a great number of their handsome white and purple blossoms were fully expanded. Some large beds on the terraces were also filled with *Ghent Azaleas*, of mixed colours—yellow, orange, red, and scarlet.

The interior of the Palace presented a very gay appearance, from the excellent arrangements which had been made for the exhibition of the plants, as well as from the brilliant assemblage of ladies and visitors. Along the immense nave of the building tables extended to a length of about 240 yards, well filled on both sides; in addition to which, other tables along the great transept afforded eighty yards of additional space, which made a total length of plants of six hundred and forty yards!—the great majority of which were well grown and flowered, and comprised the choicest of each class. The exhibition of fruit also was very extensive, and exceedingly fine.

Among the "new and rare" plants, Messrs. Veitch, as usual, contributed very largely: one of the most conspicuous was a large branch of *Embothrium coccineum*, said to be perfectly hardy; it appears to form a large evergreen shrub, belonging to the natural order *Proteaceæ*, a most abundant bloomer; the flowers narrow, long, tubular, and curved, of a brilliant scarlet, closely set among the dark shining foliage. Other new things comprised a species of *Pernettya*, from Patagonia; a much-branched, dwarf shrub, somewhat similar in growth and bloom to the old favourite *Andromeda floribunda;* the flowers are, however, if possible, more abundant, but not so pure a white. *Dendrobium Veitchi*, from the East Indies, the calyx and petals lemon-yellow, with a large green lip, veined with maroon, and a tuft of fine hairs behind each flower. *Odontoglossum Richenheimi*, from Mexico; sepals and petals marked with crimson and yellow transverse bands, the liplilac-purple, the flowers borne in a long raceme. *Ixora acuminata*, the blossoms small, white, tube pale green. *Rhododendron jasminiflorum*, with its waxy white flowers, although not strictly new, yet somewhat rare, and very handsome. Messrs. Veitch's specimen was well grown. *R. Veitchii*, with its large crisped white flowers, has already been described. *R. Brookeanum*, a very distinct but straggling grower, the flowers very thick and waxy, of a clear golden yellow, about an inch and a half across, its foliage is a very light green, long and narrow. *R. Princess Royal*, a hybrid between the preceding and *R. Javanicum*, in form intermediate between its parents, the flowers clear salmon rose; a strikingly handsome and distinct hybrid. A new *Cissus*, with leaves similar in form to those of the beautiful *C. discolor*, but much larger and not so showy; their ground-colour deep green, marked with irregular spots of dull pink along the transverse veins, the under sides brownish red. *Meyenia erecta*, of this plant Messrs. Veitch had a large specimen measuring two feet across; the flowers are peculiarly rich, making a beautiful contrast in their colours, the corolla being of a deep violet-plum, with a clear yellow throat, in form resembling *Thunbergia alata*. A large plant of *Tradescantia discolor*, with its fine foliage of yellow and green. *Grevillea Drummondii*, with pale yellowish green flowers, and narrow, graceful foliage. The same firm exhibited also a healthy young plant of *Wellingtonia gigantea*, two feet high, well clothed with branches, spreading to the same distance. Mr. Glendinning had two fine plants of his handsome *Farfugium grande*, and several specimens of *Abies Kempferi;* he also showed a large plant of *Gesneria Donckelaari*, two feet high, with a spike bearing a large number of its pretty crimson flowers, the leaves more than a foot in diameter. *Leptodactylon Californicum*, a fine plant, was shown, eighteen inches high, bearing a number of its pretty, rosy, Phlox-like flowers. Messrs. Cutbush had a specimen of *Solanum purpureum*, with large, flat, velvety leaves, in form like the common Coltsfoot (*Tussilago*), a foot across, deep olive-green, with the veins pure white, and, as well as the stalks, somewhat spinose. Mr. Epps exhibited a couple of seedling *Ericas*, one with flask-shaped flowers, white, with a green band surrounding the end of the tube, glutinous; the other, named *E. tricolor Eppsii*, of a like form, the base of the blossoms orange-red, shading off to white, with similar green band, glutinous. An ornamental basketful of seedling *Gloxinias*, of the upright class, tastefully arranged in moss, produced a pretty effect. A fine standard plant of *Rhododendron Dalhousianum*, four feet high, was exhibited, which had nearly twenty-five fully expanded blossoms, borne in threes at the extremities of the branches, measuring from three to four inches across, of stiff and waxy substance, white, tinged with green at the base. From Messrs. Jackson were *Begonia picta*, a native of the East Indies, having large foliage, olive-green, with an irregular blotch of lead colour between each principal vein. *B. viciaefolia maculata*, a pretty cut-leafed species, with a neat cut leaf, variegated with brown. *Eucharis grandiflora*, a fine stove bulb, with beautiful, white, thick, Narcissus-like flowers, and fine large foliage of a brilliant green. *Rhododendron Blandfordianum*, a large plant of this was shown, with but few flowers, small, and pale yellow. Messrs. Henderson, of Pine Apple Place, sent a tall specimen of *Lilium giganteum*, with a spike of eight flowers.

Of new hybrid productions there were a few good things. The seedling *Pelargoniums* of 1856-7 comprised *Cherry-ripe* (Turner), delicate flesh, the upper petals with a small crimson spot, lower lighter spots of the same tint, distinct in colour, but not first-rate in form; *Imperatrice* (Turner), upper petals crimson-maroon, edged with rose, lower clear rose, large pure white centre, and good substance; *Mr. Marnock* (Turner), upper petals blotched with crimson, edged with rose, lower ones deep rose, with a distinct spot in the way of *Sanspareil; Etna* (Turner), upper petals deep maroon, with a narrow edge of orange-red, lower flame coloured, tolerable substance and outline; *Rose Celestial*, a large flower, upper petals purple-crimson, broadly edged with lilac-rose, lower clear rose, with white centre; *Evangeline* (Fouquet), upper petals maroon-purple, narrowly margined with lighter purple, lower petals deep purple-rose, with a veined spot and white eye, good high colours, and tolerable form; *Signora*, upper petals maroon, edged with purple, lower purple-rose, small spot, white centre, large and good; *Hesperus*, upper petals brilliant crimson, edged with fiery scarlet, lower petals salmon-red, rather small, but a good flower; *Loveliness*, upper petals with a small, shaded blotch of crimson, broadly edged with a lighter shade, lower deep, clear salmon-rose, snow-white centre, fine form and substance;

The Bride, upper petals a large shaded blotch violet-purple, passing off to a broad edge of pure white, lower petals very clear white, good form and substance, one of the best, and likely to prove the most useful flower shown, it being also of excellent habit; *Dorothea*, this had only one bloom expanded, which appeared as near perfection as possible, upper petals intense maroon, with a narrow, even edge of rosy purple, lower clear rose, pure centre, and fine substance; *Rosalie*, upper petals maroon blotch, broadly edged with rosy scarlet, lower petals clear rosy scarlet; *Florence* (Foster), upper petals maroon, edged with rose, lower petals clear rose, centre white, fine form and smooth outline. There were other seedlings exhibited, which our space will not allow us to describe; those above named, however, are the most select.

The successful competitors, first in each class, were the following:—For twenty stove and greenhouse plants in flower (£30), Thomas Whitbread, gardener to H. Collyer, Esq., Dartford; for twelve ditto (£18), G. S. Dods, gardener to Sir John Cathcart, Cooper's Hill, Chertsey; for six ditto (£10), J. Peed, gardener to C. T. Gabriel, Esq., Norfolk House, Streatham; for twenty-five stove and greenhouse plants, in or out of flower, grouped for effect (£25), Messrs. Veitch and Son, Chelsea; for twenty Orchids, exotic species (amateurs), (£30), Mr, Gedney, gardener to Mrs. Ellis, Hoddesdon; for ditto (nurserymen), (£30), Messrs. Veitch and Son; for twelve ditto (amateurs), (£15), S. M. Carson, gardener to W. F. G. Farmer, Esq., Nonsuch Park, Surrey; for six exotic ditto (£10), G. S. Dods, gardener to Sir John Cathcart; for twelve greenhouse Azaleas (£18), John Green, gardener to Sir Edward Antrobus, Lower Cheam, Surrey; for six ditto (amateurs), (£8), Thomas Page, gardener to W. Leaf, Esq., Park Hill, Streatham; for twelve new greenhouse Azaleas (£10), John Green, gardener to Sir E. Antrobus; for six Elichrysums (£4), William Laybank, gardener to Thomas-Maudesley, Esq., Norwood; for ten Cape Heaths (£8), B. Peed, gardener to T. Treadwell, Esq., Norwood; for six Cape Heaths (amateurs), (£6), George Young, gardener to W. Stone, Esq., Dulwich Hill; for six tall Cacti, species or varieties in flower (£7), John Green, gardener to Sir E. Antrobus; for twelve Roses in pots, distinct (£10), Messrs. Paul and Son; for six ditto (amateurs), (£5), Alexander Rowland, Rosenthal, Lewisham; for twelve Calceolarias, distinct (£5), Mr. John Dobson, Isleworth; for six Fuchsias, distinct (£4), Thomas Reed, gardener to T. N. Farquhar, Esq., Sydenham; for twelve Pelargoniums, distinct, in eight-inch pots (amateurs), (£10), William Nye, gardener, to E. Foster, Esq., Clewer Manor, Berks; for twelve ditto (nurserymen), (£10), C. Turner, Slough; for six fancy ditto (amateurs), (£5), A. Bousie, gardener to the Right Hon. H. Labouchere; for six fancy ditto (nurserymen), (£5), C. Turner, Slough; for the best new or rare plant in flower (£3), Messrs. Veitch, for *Rhododendron Veitchii*; for ditto, not in flower (£3), R. Glendinning, for *Farfugium grande;* for the best hardy ornamental plant, remarkable for its fine habit, or the beauty of its foliage (£3), Messrs. Veitch, for *Wellingtonia gigantea;* for the best seedling Pelargonium of 1856-7 (£1), Mr. E. Beck, for *Bride;* for six plants of *Nepenthes* with pitchers (£10), W. Gedney, gardener to Mrs. Ellis, Hoddesdon; for six plants of *Anæctochilus* and *Physiurus* (£3), Messrs. Veitch, Chelsea; for twelve exotic Ferns (£4), Mr. Robert Parker, Holloway; for British Ferns (£3), Mr. T. Simms, Foot's Cray, Kent.

The amount awarded in prizes at this magnificent Exhibition was, for plants, £760 5*s*., and for fruits, £139 15*s*., making a total of £900. We regret that we are unable to give a more particular account of the many new seedlings exhibited, which, however, having ample materials, we shall notice from time to time. The number of visitors was large, and every one appeared to enjoy the occasion vastly. We can do no more than recommend our country cousins, and every one who has a taste for flowers or fine fruit, to come and see the floral fêtes at Sydenham, for themselves.

REMARKS ON THE CULTURE OF THE GREENHOUSE AZALEA.

BY MR. G. W. FORMES, WINCHESTER.

SCARCELY any flower in the greenhouse is more attractive than a well-grown specimen of the Indian Azalea. The abundance of its bloom, the delicate and brilliant shades of its colour, its compact growth, and pretty foliage, combine to render it an universal favourite for the decoration of the conservatory or greenhouse. A well-grown plant, of from four to five feet high and as much across, when in bloom, presents a blaze of beauty, with scarcely a leaf to be seen, which is not surpassed by any other inhabitant of the same house.

With the following treatment, the Azalea will be found to flourish well, having practised it myself for many years, with great success. When the plants have done flowering, if it is found necessary to give them a shift, prepare some compost, consisting of two-thirds of boggy peat and one-third of good rotten leaf-soil, to which add a good sprinkling of silver sand. It is not well to sift the soils, as it renders them too close, and abstracts all the vegetable fibre. They are best mixed by being chopped fine with a spade. The pots used should be new, if possible, or very cleanly washed and dried, and one size larger than that the plant was growing in previously. Copious drainage must be allowed, for nothing hinders Azaleas more than stagnant water; on this will depend the health of the specimen.

When potting the plant, it is not well to place its crown too high above the level of the soil, nor too low; for in one case the roots are apt to become exposed to the air, and in the other, they are liable to rot with the water: very slightly raised towards the centre of the pot, I consider best. When the plants have received their shift, I place them for a time in the stove, and give them every attention as to water, which has been allowed to become tepid and soft, by standing near the pipes or flue all night. I also use the syringe about once every day, in order to give the foliage a good wash, and prevent insects. If the weather is very hot, I apply it two or sometimes three times a day. It will be found greatly to assist the growth and health of the plants, which, in the course of two months, will have made fresh shoots six or eight inches long.

They must be allowed to remain in their present situation until they have formed their next season's flower-buds, which, if the shoots are examined, may readily be felt at their extremities. The plants must then be removed into the conservatory or greenhouse to harden them a little, allowing, in fine weather, plenty of air; or, if more convenient, they may be stood out in the open air, where they will be cool and airy, until the greenhouse plants are taken in for the winter. If the plants have bloomed very profusely last season, they will perhaps have in some degree exhausted themselves; in which case tie some moss round the principal stems, and keep it regularly moist; this will cause them to break, and grow freely. Those cultivators who have not the advantage of a stove may keep their plants in the greenhouse till the buds are well set, even if it allows but two or three weeks for setting them in the open air, which is of great service to them. Under such treatment, they will make plenty of root, and receive no injury from over-watering, for it will scarcely be possible to give it too frequently, as the close mass of fibres absorb a large quantity of that element. Indeed, under any other system, it is almost useless to attempt to bloom several varieties; and all, instead of bearing a meagre supply of flowers, here and there one, will be an entire mass of bloom, and if the stock of plants admit of the proper supply, the blooming season may be prolonged from the autumn to June.

The accompanying descriptive list of Azaleas comprises none but such as are really good, and may prove useful to the readers of your interesting periodical.

Admiration, a fine flower, pure white ground; some of the flowers having large flakes of carmine.

Beauty of Europe, pink, striped with carmine; a very distinct and free-blooming variety.

Coccinea superba, light scarlet; a most profuse flowerer.

Glory of Sunning Hill, bright salmon-rose, a fine double flower; very free bloomer, and one of the best.

Criterion, delicate salmon-pink, edged with white, and spotted with crimson on the upper petals; a fine form and substance, very fine flower.

Coronata, beautiful bright rosy red; distinct and free bloomer.

Extranii, violet-rose, fine form.

Juliana, orange-scarlet, deeply spotted, fine form; one of the best.
Louis Napoleon, rich crimson-violet; a very distinct and showy semi-double flower.
Madame Meillez, white, flaked with violet; good form.
Arborea purpurea, a very large violet-purple flower, with bright crimson spots on the upper petals. This variety, which is one of the most showy, is known under several names, as *conspicua purpurea, purpurea elegans*, etc.
Murrayana, clear rose, a fine form.
Queen of Perfection, rosy purple, deeply spotted.
The Bride, the best of the whites; flower very pure waxy white, and fine foliage. A free bloomer.
Perryana, orange-scarlet, fine form; one of the best.
Symmetry, light salmon-red, fine shape.
Barclayana, large white, striped, and flaked with violet; one of the best of the stripes.
Iveryana, a splendidly shaped flower of good substance; white, some of the blooms striped with rose; one of the best.
Sir Charles Napier, an immense flower, salmon-red, fine.
Stanleyana, clear light red, good shape and substance, large flower; one of the best.
Narcissiflora, a double white; free bloomer.
Dilecta, large, showy salmon-rose; good substance, distinct and fine.
Eulalie Van Geert, a fine large flower, blush-pink; a rich spotted flower of good substance, distinct, and very fine.
Empress Eugenie, transparent rose, well spotted; a finely shaped flower.

* * *

REVIEW.

Popular Greenhouse Botany; containing a Familiar and Technical Description of a Selection of the Exotic Plants introduced into the Greenhouse. By AGNES CATLOW. London: Lovell Reeve, Henrietta Street. Square 16mo, 20 coloured plates, pp. 312. Price 10*s*. 6*d*.

MR. REEVE deserves the thanks of all lovers of flowers and nature in all its phases, for the excellent series of little works which he has already brought out on various branches of natural history, especially Botany, and of which series the present is a fresh volume; like the former ones, very neatly got up, carefully illustrated, and containing some judicious remarks.

The authoress observes, "During the comparatively desolate period of winter, when remembrance of the past only brings regret, and hope for the following season is rather too distant to afford much consolation, the greenhouse offers its valuable services, not merely by nurturing and preserving our favourites, but by presenting to us its own peculiar gifts, in those delicate exotics which will not bear exposure to our rude clime, but must be fostered by protection from the outer air, and occasionally by artificial heat. A greenhouse is now generally considered an indispensable addition to a garden of any pretension; and, as Cowper says, 'who loves a garden, loves a greenhouse too,' for the very efficient reason, that, 'there blooms exotic beauty, warm and snug, while the winds whistle and the snows descend.'"

The pages of this little work are devoted to greenhouse gardening, treating of those plants which are generally introduced under the shelter of glass, both summer and winter, and also those that only require a security from the cold of the latter season. A greenhouse is, in fact, simply a place secure from frost; for when the thermometer falls so low that freezing is apprehended, then a fire to heat the flues or pipes will raise the temperature within the house, causing the plants to enjoy a propitious climate, whilst all out of doors feels the severity of the weather. Here the mild air allows vegetation to go on, and, contrasted with the state of the garden, the flowers seem doubly valuable, and more exquisitely beautiful at this season than in the height of summer. A visit to this Crystal Palace in miniature, when out-of-door pursuits cannot be followed, is a source of pleasure which few will deny themselves who have the means to gratify it.

In the erection of a greenhouse, and choice of a suitable locality for it, no plans are given, as the style, size, and aspect depend entirely on circumstances, and are better left to experienced persons on the spot. It is therefore supposed that the house is built in the best possible manner; but it is advised, where practicable, that it should be divided into two parts, one to be kept warmer than the other for house Ferns, which also love a moister atmosphere than most other plants; or for forcing flowers in winter, to ornament the conservatory or sitting-room; or this portion may be used for propagating. A slate cistern in one corner should not be forgotten, which may receive rain from the outside; the water is then of the same temperature as the house, and in a more suitable state for the tender plants. It is a good plan also to have a small building attached, to be used as a potting-house, fitted up with a convenient table, with shelves and drawers for bulbs, seeds, and tools.

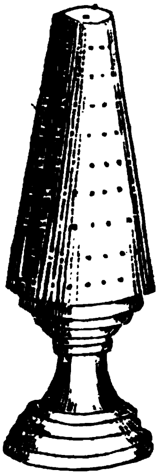
The house now only requires to be filled with plants, and managed with ordinary care, with the assistance of a gardener who has some experience in the subject; one is generally attached to a good garden, who has the management of the heating apparatus, who knows when windows should be open or shut, water used or withheld, and all the little details of this kind, which must be attended to by a person who is on the spot at all times and seasons. Still a few plain directions may be useful to note here; as, that air must be admitted with caution if there be a tendency to frost, but in summer and all warm days freely, or the plants become tender and grow straggling; in winter, water is to be administered very cautiously, only keeping the earth just moist, but in spring increasing in quantity, and particularly when the plants are flowering and in sunny weather. The sooner fires can be dispensed with, the better it is for the plants in general; but still precautions must be taken against even slight frost, by shutting up the house early and covering with mats. If insects appear on the plants, the house must be fumigated, or each plant washed carefully. In summer, a rolling blind is almost indispensable; for as the house stands more or less facing the south, the plants will otherwise be liable to be scorched, or otherwise injured in their delicate blossoms."

"Popular Greenhouse Botany" will prove a serviceable book to the amateur, and as such we recommend it.

A PYRAMIDAL BOUQUET-STAND.

BY MR. D. STEAD, FLORIST, MARSH GROVE, HUDDERSFIELD.

FLOWERS being among the choicest ornaments of our dwelling-rooms and apartments, I have devised a small article intended for the purpose of arranging them with better effect than can be done by a mere vase or jar, and in which the water is ensured in contact with each particular flower-stem, preserving a fresh and beautiful appearance for a length of time.



The following is a description of my invention:—

The upper portion is a metal cylinder, pierced with holes all round, each of which is supplied with water poured in at a single hole at top. In this consists the ingenuity of the invention, which I can assure your readers is effected very completely: each hole is large enough to admit a flower-stalk, the water is close up to the hole, and is there retained. By means of this contrivance, flowers with short stalks may be used, and they retain their beauty unimpaired for some time.

[We are pleased with this Bouquet-stand, not only for the ingenuity displayed in its contrivance, but for the beautiful appearance it has when neatly covered with flowers.—ED.]

NOTES ON NEW AND SELECT PLANTS.

ECHEVERIA CANALICULATA. Nat. Ord. *Crassulaceæ.* Although introduced from Real del Monte many years ago, this interesting Crassulaceous plant has not been before described by any botanist. It approaches nearly to *E. Scheerii* in the flower, but differs from that species, in the leaves being oblong, tapering, and channelled. The stem is short, thick, and fleshy; leaves four to six inches long, glaucous, somewhat tinged with purple; flowering stem nearly two feet high; raceme about nine inches; flowers brick-red, orange inside, near an inch long, a five-angled tube. Blossoms in the greenhouse in April. (*Bot. Mag.*, 4986.)

83. **Gardenia citriodora.** Nat. Ord. *Rubiaceæ.* A new Gardenia introduced from Natal by Messrs. Rollisson, in whose stove it has lately flowered. It forms a handsome spreading bush or evergreen shrub, about two feet high, bearing an abundance of pretty white blossoms, resembling in size and appearance those of the orange, of a delicious odour, similar to that of the same flower, from which circumstance the specific name originated; the leaves are elliptico-lanceolate, opposite, from four to six inches long, of a deep green. Well worthy of cultivation. (*Bot. Mag.*, 4987.)

84. **Begonia Wageneriana.** Nat. Ord. *Begoniaceæ.* Another addition to the known species of this extensive and pretty genus. It is a native of Venezuela, where it was discovered by the adventurous botanist whose name it bears, and by him forwarded to the Botanic Garden at Berlin; specimens have since found their way to the establishment at Kew. It is a free-flowering species, but of rather loose habit, growing from one to two feet high; the whole pale sea-green, except the male flowers, which are white, of small size, borne in small cymes or panicles; the leaves are from three to four inches long, glabrous, cordato-ovate. Dr. Klotzsch, in his work entitled "Begoniaceæ," proposes to subdivide the old genus Begonia; but, as Sir William Hooker justly remarks, "we deem it to be most accordant to nature to preserve the genus intact, and consider the so-called generic distinctions recently suggested as sectional characters." At any rate, before the new genera can be finally decided upon, the numerous species, comparatively unknown to Dr. Klotzsch, of India and other parts of the world, should be taken into account. Dr. Klotzsch proposes to call our present plant *Moschowitzia Wageneriana.* (*Bot. Mag.*, 4988.)

85. **Xanthosoma sagittifolium.** Nat. Ord. *Aroideæ.*—An old plant, not often seen in cultivation, but grown in the West Indies as an esculent, and a native of tropical America. It flowers in our stoves during the winter months. The leaves are of large size, some attaining almost three feet in length, broadly sagittate; the flower is a spathe, somewhat like that of the well-known *Richardia*, pale green or whitish, eight to ten inches long. (*Bot. Mag.*, 4989.)

86. **Cypripedium hirsutissimum.** Nat. Ord. *Orchideæ.*—From Java. It is a very attractive species, blooming in the stove in April. The flowers are large, measuring in their greater diameter about five inches; petals purple and green, with purple dots; lateral sepals green; lip deep green, large, with a tinge of purple. The flowers and stems are hairy, but the leaves smooth, glabrous, a foot or more long. (*Bot. Mag.*, 4990.)

87. **Aquilegia eximia.** Nat. Ord. *Ranunculaceæ.*—This very

pretty Aquilegia was raised by M. Van Houtte, from Californian seeds obtained by that eminent horticulturist in a collection gathered by M. Boursier de la Rivière. It flowered for the first time in Europe at M. Van Houtte's nursery, Ghent, in 1856. The flowers are bright red, shaded with orange, in appearance resembling a beautiful coronet, borne on long, gracefully curving footstalks; being quite hardy, it will no doubt prove a very acceptable addition to our stock of herbaceous plants. (*Flore des Serres*, 1188.)

88. Tanacetum elegans. Nat. Ord. *Comp. Anthemideæ.*—An interesting new Tansy from California, raised also by M. Van Houtte from M. De la Rivière's seeds. It has a very handsome finely pinnate leaf, which, before it is fully developed, is snow-white. The flowers are yellow, in size and appearance resembling those of the common cultivated species. (*Flore des Serres*, 1191.)

89. Achimenes (Nægelia) amabilis. Nat. Ord. *Gesneriaceæ.*—This charming species, originating in Mexico, is distinguished from all its congeners by the form and colour of its flowers, which much resemble those of *Gloxinia tubiflora*, being rather more than two inches long, the tube and corolla white, the former tinged with yellow, as is also the throat; they are borne on a long spike. The foliage is large, of a rich green, and pubescent; the rhizomes scaly. It is deserving of a place in every collection. (*Flore des Serres*, 1192.)

90. Hæmanthus cinnabarinus. Nat. Ord. *Amaryllideæ.*—According to M. Decaisne, we learn that the subject of this notice was received from Gabon in 1855. In habit and flower it resembles other plants of the same genus, but is remarkable for the bright cinnabar-red of its flowers, which measure an inch and a half across; the stamens are very conspicuous, and of the same tint. It will be an interesting novelty to the cultivator of stove bulbs. (*Flore des Serres*, 1195.)

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NEW AND SELECT GARDEN HYBRIDS.

AZALEA INDICA, var. GEM (Ivery).—A fine rosy red flower, slightly spotted at the base of the upper petals, fine form and stout substance, of medium size.

47. Azalea, General Williams (Ivery).—Rosy red, a large, bold, and stout flower, of good form; habit dwarf and compact. This is a great improvement on *lateritia formosa.*

48. Azalea, Lord Raglan (Ivery).—Distinct, but not striking in colour; it is a sport from the old *Iveryana*, and like it in its compact habit, large flowers, and profuse bloom; the blossoms are of fine form, but dull purple-red tint.

49. Azalea, Rosy Circle (Ivery).—An excellent-formed flower, the corolla of good substance, and nice outline. Its colour is light

lilac-rose, faintly spotted with dark rose on the upper segments. It is a very distinct, new shade of colour.

50. AZALEA, BRILLIANT (Ivery).—This will be found to be a desirable, early-blooming variety; the flowers are large, of a fine orange-scarlet; habit compact, and very free blooming. The above Azalea has been exhibited at the principal exhibitions, where they were awarded first-class certificates, which they well merit.

51, VERBENA, LADY PALMERSTON (Banks).—Rosy salmon, with a large yellow eye, surrounded with a red band, rather a novel colour; habit good, and a nice trusser.

51. VERBENA, PRINCE OF PRUSSIA (Breeze).—Rosy violet, with a large white eye; a very fine showy variety for bedding purposes.

52. VERBENA, LADY ALBINA FOSTER (Breeze).—A nice compact habit, and good truss of bloom; rosy carmine, with a conspicuous yellow eye, a deeper band of crimson surrounding it.

53. VERBENA, QUEEN OF OUDE (Breeze).—Fine purple-blue, with a large white centre, around which is a shade of crimson, a colour much wanted; form good.

54. VERONICA DECUSSATA, *var.* DEVONIANA (Luscombe).—The great difference between the present variety and the old *decussata* is, that it is far more free flowering. In growth it somewhat resembles a small *Crassula coccinea*, being well set with neat foliage of a bright green; the flowers are borne in terminal, globose heads, pure white. It promises to make a very attractive pot plant.

55. PELARGONIUM ZONALE, *var.* FONTAINEBLEAU (Elphinstone).—A very desirable acquisition to the variegated-leafed class, as well in this respect as for its flowers, which are of a cheerful, bright rose, and fine form, borne in good-sized trusses; the leaf is a lively green in the centre, around which is a broad band of delicate rose, with brownish blotches. The outer margin broad, clear sulphur-yellow, forming one of the prettiest leaves in this attractive class.

56. PELARGONIUM, CULFORD BEAUTY (Grieves). — In habit robust, resembling *Flower of the Day*, the leaf is large, and broadly margined with clear sulphur-yellow. A large truss of well-formed flowers, of a deep rich scarlet.

57. PELARGONIUM, AVENIR (Dubus).—We have not seen this flower ourselves, but from the beautiful figure of this fancy Pelargonium given by M. Van Houtte, we should say it is a very pretty variety, something in the way of, but an improvement on, *Roseum striatum*. All the petals are richly striped with crimson, rose, and white. We understand M. Van Houtte is prepared to send it out.

58. VERBENA, MISS TROTTER (Thomson).—A brilliant scarlet variety, likely to be valuable for bedding purposes, from the profusion of its blossoms. The raiser, Mr. Thomson, has had a "ribbon bed" of it, one hundred and fifty yards in length, which covered the space as with a scarlet cloth, and was the admiration of all who saw it. The trusses of bloom are very fine; habit dwarf and compact; and one of the most perpetual-flowering varieties yet out.

59. **Gaillardia, *var.* Grandiflora.**—A magnificent variety, supposed to be a seedling from *G. aristata*, fertilized by *G. splendens*. The flowers are four inches across, of a brilliant crimson-scarlet towards the centre, each petal tipped with yellow, closely set, so as to form a complete ring of that lively colour all round the flower. In habit it is strong and robust, though scarcely hardy enough for the open air; it does well in a cool house. It has recently been brought into notice by Mr. Philippe, of Sclessing, who had it of a gardener in his neighbourhood.

60. **Weigelia amabilis, fol. variegatis** (Syn. *Diervilla amabilis, fl. var.*)—M. Desbois (in the establishment of M. Van Houtte) has succeeded in producing a variegated-leafed variety of this handsome shrub, plants of which are now being sent out, and no doubt it will become a favourite. The leaves are rather irregularly but deeply bordered with greenish yellow, the younger ones with a tinge of pink.

61. **Tydæa (Achimenes), *var.* Eeckhautei.**—A hybrid raised by M. Roezel, who has originated several good things in this way. It resembles *T. Ortgiesii* in its rich crimson tube and corolla, the former, however, is somewhat of a deeper tint; the corolla and mouth of the tube are richly spotted with deep crimson; the throat pale yellow. Unlike others of this tribe it is very dwarf, and bears its lovely blossoms when scarcely six inches high, which we are informed it continues to put forth in succession for about six months, a quality that will be sure to make it prized for ornamental purposes, especially when we consider the short time most of this tribe continue in bloom.

62. **Balsams, Camellia-flowered.**—M. Van Houtte has published a plate of six remarkably fine flowers of this class, which appears to be making rapid improvement. On the Continent, Messrs. Vilmorin, and in our country, Mr. Glenny, have raised some extremely large and very double ones, which, M. Van Houtte observes, bid fair to rival the flowers of the favourite shrub after which this class of Balsams is named. Some of the flowers in the plate now before us measure nearly three inches across, are well shaped, and remarkably double.

FLORICULTURAL OPERATIONS FOR JULY.

IN THE FLOWER GARDEN.

General Operations.—*Box edgings*, keep neatly clipped. *Cuttings*, of herbaceous plants, may now be made. *Flower-stalks*, cut down, unless wanted for seeding, as they go out of flower. *Hedges*, dress and clip. *Hoe*, all weeds should be stopped by the use of this implement. A fine day at this season should not be neglected. *Liquid manure*, give occasionally to those subjects requiring it. *Roll and mow* lawns every ten or twelve days. *Seeds* should be looked to, gathered as soon as ripe, and allowed a free circulation of air to dry them. *Stakes* should be put to all tall-growing plants to secure them from the wind. *Surface soil* should be loosened around clumps, and in beds. *Water*, give liberally over roots and foliage.

CULTURAL DEPARTMENT.—*Alpines*, similar treatment as directed for the last two months may be followed; seed may be gathered, and cuttings put in. *Annuals*, sow for autumn blooming. *Antirrhinums*, apply liquid manure, and syringe. *Auriculas*, protect from heavy rains in a cool, shady situation; fumigate whenever green-fly makes its appearance; see to the compost for next month's potting. *Carnations and Picotees* may be layered towards the end of the month, it is a bad plan to cut the leaves; shade from sun and rain; seedlings may be transplanted into beds of rich loam; tie up flowering buds, to prevent bursting. *Chrysanthemums* must be shifted again into thirty-twos, or into twenty-fours for large plants, using the compost as before directed. Plunge the pots, and apply manure-water liberally. Stake them neatly, to prevent their being broken. Do not stop the leads of any shoots after the middle of this month, as the lateral shoots would not produce a satisfactory bloom. *Dahlias*, as side shoots will be pushed, take away all but three or four, leaving those which are the best situated to form the plant regularly, afterwards tie them well outwards, to allow the sun and air free access. Such as produce small flowers require considerable thinning, the more vigorous being left with a greater quantity of shoots, to prevent coarseness in the bloom. Those varieties intended for show blooming should retain two lateral shoots on each of the main branches; thus a plant with three should have six laterals, and each of these should have *one* blossom only. As the plants advance, more water is necessary. Destroy earwigs, thrips, and other pests of this noble flower. *Evergreens*, prune, and pick ont seedlings. *Hollyhocks*, see last month; mulch, and water freely. Cuttings may be put in, for directions, see *Cold pit and frame*. *Pansies*, put in, and pot off cuttings, layer, and protect from wind or draught. Save seed from the best flowers. *Petunias*, save seed, if variety be desired. *Pinks*, finish layering and piping. *Polyanthuses*, old roots may be parted, and seedlings transplanted. *Ranunculuses*, let the beds be exposed to the full action of the sun, except in wet weather, when they require protection, or the roots may start again. Look over the beds, and take up such as have withered foliage, which continue to do until the whole are secured. Keep the roots from damp until the season returns for putting them again into the ground. *Roses*, budding is generally performed this month. The thorns on those parts of the young wood of the stock where it is desired to bud should be removed in the early part of the month. The most favourable weather for budding is dull and cloudy; the evening is also a good time. Layers and cuttings may be put in. Liquid manure is very beneficial in causing the expansion of the flowers of some varieties. The maggot must be kept down by careful search. *Stocks*, *Intermediate*, sow seed the first week in the month, on a bed of light rich soil, in a situation screened from mid-day sun, where they may remain until September. *Tulips*, finish taking up the bulbs, and place in a dry shady place; remove the soil and outer skin when it has become thoroughly dry, and place them in drawers or boxes.

IN THE GREENHOUSE, COLD PIT, AND FRAME.

GENERAL OPERATIONS.—*Air*, admit freely on all favourable occasions, both day and night. *Bud and graft* Azaleas, Camellias, and Oranges. *Cuttings*, put in and place either in the cold pit or frame, according to their nature, but near the glass. *Fumigate* frequently plants subject to the attacks of green-fly. *Greenhouse plants* placed in the open air in pots require frequent attention with the syringe, to keep down insects. *Shade*, when necessary, especially newly potted plants or cuttings. *Shifting* must not be omitted to all quick-growing plants, which soon fill their pots with roots. *Succession*, attend to keeping up, with Achimenes, Fuchsias, Pelargoniums, etc. *Water*, at this period there is rapid evaporation, which necessitates frequent waterings, as well as free use of the syringe; plants in peat soil require particular attention in this respect.

CULTURAL DEPARTMENT IN THE COLD PIT AND FRAME.—*Heliotropes and similar plants*, if cuttings are inserted in a mixture of sandy loam and leaf-mould, in pans holding from forty to fifty, and kept moderately moist, they will soon root. Pot them off, six in a pot, and stop them in; they will furnish a supply for next year's decoration. *Hollyhocks* can be propagated by single eyes from young, though somewhat woody, shoots, taking care the bark is sufficiently hard, but the stems not pithy or hollow inside. Each cutting must have but one eye, close under which the cut is to be made. The eyes should be placed round a pot in light and very sandy loam, put in a close frame with a little bottom heat, and sparingly watered, giving air, to exclude damp. Towards the end of the month they will be mostly rooted, and should be potted in small sixties; then harden off. *Pentstemon speciosum*, the plants raised in the spring should now be removed to a frame or border facing the north. *Roses*, propagate by cuttings from plants that have been forced; place the plants in a shady situation, that they may have a period of rest for a few weeks.

CULTURAL DEPARTMENT IN THE GREENHOUSE.—*Azaleas*, encourage the growth, by keeping them comparatively close, but shaded from hot sun, syringing liberally. *Calceolarias*, such as have ceased blooming, should be repotted, cut off dead tops, and place where they are shaded from noon-day sun. Sow seed in light soil. Thin pods of those left for seed. *Camellias*, treat in the same manner as directed above for Azaleas. *Cinerarias*, dress off the tops when done flowering, fumigate, and turn out the plants, to induce offsets, into a raised bed of good garden or leaf soil. Sow seed, and prick out young plants. *Ericas and Epacrises*, afford plenty of air, light, and water to those blooming. When out of flower, cut down and prune. Propagate by cuttings and seed. *Fuchsias*, allow plenty of air, and attend carefully with water to those which are in full bloom; those for later bloom may now be finally repotted. *Pelargoniums*, cut down, withholding water for a day or two previously, that the soil may be dry, which causes the wounds to heal better; they may be set out of doors after cutting down, if the weather be fine and dry. Sow seed, and prepare compost for repotting. *Tropæolum tricolorum*, etc., which have ceased blooming, should have their tubers taken up, or the pots placed where they may be kept dry.

IN THE STOVE.

GENERAL OPERATIONS.—*Air*, give freely by day, and also in some degree at night. *Baskets of plants* require frequent dipping and syringing. *Cleanse* the foliage of all large-leafed plants by a free use of the sponge and syringe. *Climbers*, train and tie in. *Cuttings* may be put in, plunged in bottom heat, although greater success attends those put in at an earlier period. *Moisture*, maintain a proper degree of humidity in the atmosphere of the house by a liberal supply of water. Daniell's or Simmon's Hygrometers are invaluable in pointing out the condition of the atmospheric moisture. *Potting*, all free-growing plants, as Justicias, Cerodendrons, etc., still require shifting. *Shading*, the plants receive considerable benefit by a partial shading, and are less liable to suffer by draught. *Syringe* often in the evening. *Water*, supply in abundance to vigorous-growing specimens, but more sparingly to such as have completed their season's growth.

CULTURAL DEPARTMENT.—*Achimenes picta*, plant in pans, and start into growth for winter bloom. *Aphelandras*, pot and push on for bloom; the same will apply to *Begonias*. *Bulbs*, such as Amaryllis, etc., remove to a pit or frame, and place near the glass, where the influence of the sun, with a gradual diminution of the quantity of water, will mature them. *Euphorbia Jacquiniflora*, repot, and start for winter bloom. *Gesneria zebrina*, shift, and treat liberally; it makes a fine display in the winter months. *Gloxinias*, out of bloom, lay the pots aside, and gradually dry off in a cool situation. *Ixoras* will require one more shift this season; tie out, and stop the shoots of specimens. *Orchids* will require copious and frequent waterings for all those from the more humid parts of the tropics, such as *Stanhopeas*, *Dendrobiums*, *Gongoras*, etc.; such plants as *Cattleyas* require less heat and moisture, and may be placed in a cooler part of the house. All those species generally flowering during the winter season should have their growth perfected as speedily as possible, and then be gradually excluded from all exciting influences, and placed in cool and more favourable situations. *Poinsettia pulcherrima*, pot, and plunge in bottom heat, to induce a vigorous growth.

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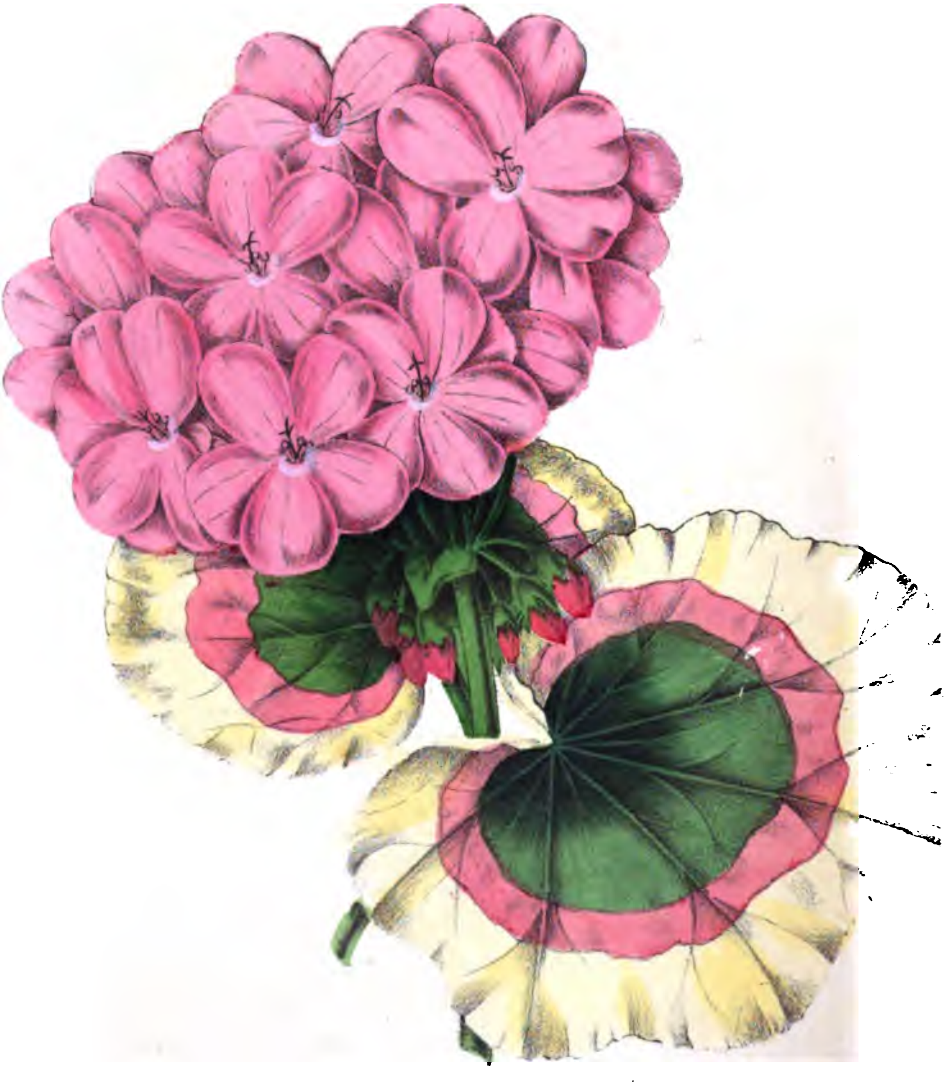
QUESTIONS, ANSWERS, AND REMARKS.

Drying Specimens.—It may interest such of the readers of the *Cabinet* as are engaged in the formation of herbaria, to be put in possession of a speedy method of drying their specimens. I have tried the plan with great success; it is as follows:—Procure some slabs of the clay of which common flower-pots are made, of a size to correspond with the paper you intend to use, and an inch thick; have them made with cylindrical holes, half an inch in diameter, running right through, from side to side, so as to make about a dozen pipes or channels in each slab for the air to circulate through; the clay being very porous soaks up all damp, and as the air passes through them it is speedily carried off. Their use is to lay between every three or four groups of specimens. Besides being porous, their weight is generally sufficient for pressing most plants flat, without any additional screws or wedges, commonly in use, and I find they are superior to the wooden lattice frames which have lately come into use. Their cost is trifling, and they may be made at any common pottery.—*J. J. H.*

Central Horticultural Society of Surrey, Leatherhead.—This Society held its annual summer show on the 12th ultimo. The weather on the occasion was most favourable, and it must have been very gratifying to the executive that their efforts were duly appreciated, the attendance being very numerous, comprising the *élite* of the town of Leatherhead and its vicinity. The display of plants and flowers was good, and the competition of a truly earnest character. Among many excellent specimens of horticultural skill, those exhibited by Mr. Kail (gardener to Earl Lovelace), Messrs. Chilman, Lavey, and Ansell, were particularly deserving of notice. Of Pelargoniums, the most attractive were eight fancies from Mr. Kail, which were awarded the first prize. Messrs. Ivery and Son were first in Azaleas. In Roses, the cut blooms were most attractive and numerous, forming a grand feature in the exhibition; some good collections were shown, and generally in nice condition. British and Exotic Ferns were in considerable force, and appeared to call forth marked attention from all present; Mr. Lavey was the successful exhibitor in this class. The stove and greenhouse plants were in good condition; amongst them a specimen of *Pleroma elegans* was a very conspicuous object, being well grown, and bloomed in a compact head, measuring two and a half feet through, and as much high, covered with blossoms. This fine plant appears to merit a more general cultivation than it has obtained, and is worthy of a place in every collection. Some well-grown Achimenes were exhibited, but thinly flowered; also a few good Gloxinias. Space forbids notice of many other plants well worthy of notice. Of miscellaneous articles there were some very interesting objects, one of which, an exquisite basket of flowers in wax, made by Miss E. Lloyd, of Leatherhead, was awarded an extra prize. A very compact design or model of a flower garden, the production of a very intelligent gardener, Mr. J. Clarke, of Nutfield, also obtained a prize, being very tastefully executed; two other interesting models failed to gain the good opinion of the judges. On the whole, this exhibition was of a superior character, and could not have failed to realize the highest expectations of its supporters. The Society is much indebted to R. F. Remington, Esq., for his urbanity and kindness in throwing open his grounds for their use, being admirably adapted for the purpose.—*A Correspondent.*

Rhynchospermum Jasminoides.—This is not a plant remarkable for great beauty, either in blossom or foliage. It is, however, very sweet scented, and on that account well worthy of cultivation. It does not usually bloom well, although I have had it sometimes almost covered with its spreading corymbose heads of white jasmine-like flowers. Cuttings root freely in sand, under a bell-glass in bottom heat; they are made from the half-ripened wood. When rooted, pot them off into a light, rather rich compost, well drained, and set them in a close frame until established; after this, a warm place in the greenhouse suits them best. As they will here make quick progress, they will require liberal shifts, and when in mature luxuriance they may have weak liquid manure in small quantities, or alternating with the other waterings; in winter, it is best to keep this plant rather dry. It is a capital thing for training on a greenhouse trellis, the strong shoots being stopped to equalize the growth. It is a native of Shanghai, introduced by Mr. Fortune to the Horticultural Society.—*B. B.*



FONTAINEBLEAU.

The Floricultural Cabinet.

AUGUST, 1857.

ILLUSTRATION.

PELARGONIUM ZONALE, VAR. FONTAINEBLEAU.

SINCE the introduction of *Flower of the Day*, by Messrs. Lee, a few years back, there has been a rapid and very marked improvement in the class of Scarlet Geraniums, especially with regard to ornamental foliage. For bedding purposes we have numerous excellent varieties, displaying great variation both of flower and leaf; and instead of the ill-formed and scarcely attractive sorts previously in cultivation, we have many flowers of fine form and beautifully contrasted foliage. The striking variety we figure in the present number is a very effective plant, either as an edging for a border, for massing, or as a pot plant. The flowers are of good form, produced in fine large trusses, and of a beautiful bright rosy pink. The foliage is large, and must be ranked as the most distinct of any yet out; the centre is green, surrounded with a clear rosy red zone or band, and broad, clear, sulphur-coloured margin, very deep and ample. Its habit is good, and the stems stout; altogether it is a decided novelty. Beds of this, with Scarlet and Purple Verbenas, will produce a charming effect. *Fontainebleau* was raised by Mr. Elphinstone.

We have appended a few descriptive remarks on the best sorts now in cultivation, all of which are much esteemed for their handsome foliage.

Alma.—Flowers clear scarlet; white variegated foliage; neat and compact habit.

Annie (Kinghorn).—Flowers bright scarlet, fine size and form; leaves large, margined with light cream colour; robust.

Bridal Bouquet.—Flowers equal to the preceding variety; foliage with a shaded red band, edged with white, very neat; habit dwarf and compact. A very pretty plant for pot culture.

Countess of Warwick (Kinghorn).—Flowers scarlet; foliage with a dark horseshoe mark shaded with pink, and margined with white.

Culford Beauty (Grieves).—Resembles Flower of the Day in habit; flowers of brilliant orange-scarlet, and leaves edged with deep sulphur. A fine trusser, very effective either for beds or vases.

Emperor.—Flowers bright scarlet, of fine form and size; foliage margined with pure silvery white.

Golden Admiration.—Flowers scarlet; foliage silver striped; habit dwarf and compact.

Golden Chain.—Valuable for its distinct foliage, flat and stiff, edged with golden yellow. Makes a beautiful border for a bed, and fine contrast when intermixed. A very useful and pretty variety.

Hôtel de Cluny (Elphinstone).—Flowers clear scarlet; leaves small, with green centre, surrounded with a red and dark band, bordered with pure white. A very neat, compact grower.

Lady Coventry (or Mangle's Silver Bedding variety).—Flowers worthless; foliage distinct, variegated with white; habit trailing, and well adapted for covering beds when pegged down.

Mrs. Lennox.—Flowers fine scarlet; leaves margined with very clear white; good for bedding.

Mountain of Snow.—Flowers scarlet; foliage edged with white.

Peach Blossom.—Flowers rosy salmon, or deep peach colour; leaves margined with white; habit dwarf, and adapted for pot cultivation.

Silver Queen.—Flowers pink; leaves variegated with white. An excellent variety for bedding or pot culture.

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THE AURICULA.

BY P. THOMSON, ESQ.

OF all favourites of the garden, none is more worthy the attention of the florist than the Auricula; a flower of humble habit, but a perfect gem of beauty, and an evidence of the perfection which may be attained by the cultivator in his attempts to mould a flower to a given standard. In its wild state, and on its native Alps, it is a far different thing to the "green-edged," "white-edged," and "self-coloured" favourites that adorn many humble cottages in England. There it produces self-coloured and, generally, yellow flowers, growing on the steep and rugged mountain sides, often buried under a thick mantle of snow, that serves it as a protection from the rude frosts of the ungenial Alpine winters, and from being stimulated into premature vitality under the influence of rapidly increasing light and warmth. As the snows melt away, it makes quick growth, being assisted by the moisture and good drainage afforded by the sloping sides of its native mountains. As soon as its flowers and seeds are perfected it begins to decline, and sinks again into a state of torpidity. Although the Auricula of the florist is so different in appearance to this humble wild flower, so much so, indeed, that many would not credit the fact of its being the same plant, the nearer the treatment under culture is approximated to that nature gives them on their Alpine heights the better they may be expected to succeed, making perhaps a little allowance for the plant being somewhat more tender, and liable to disease in cultivation, than when in a wild state.

The desideratum of the florist is to produce the finest-shaped flowers, to approximate as closely as possible to the ideal standard of beauty in this flower that good florists have established, and to have the largest trusses or clusters that are to be obtained. In order to produce the last requirement, however, it is necessary to stimulate the plant by an uncommon richness of soil or compost, and as regards the ingredients of this compost, almost all florists differ from each other. Soils recommended by various cultivators for almost any particular florists' flower differ very much, but in none so greatly as in that recommended for the Auricula, insomuch that the young or inexperienced cultivator is either at a loss which to choose, or perhaps loses a considerable per centage of his stock before he is able to assert on what food they succeed best. As an old cultivator, I would never advise the admixture of so many ingredients as have been recommended by some growers; several of a very disagreeable and fantastic nature—blood and offal from a butcher's shambles, putrid yeast, and other things equally offensive as unnecessary, have each had their advocates, especially among old cultivators. It has begun to be seen, however, that the Auricula may be well grown without such things, and for my own plants I employ a simple mixture of the following character, in which they flourish and produce as fine flowers as any that I have had the pleasure to see, viz., one-third of fresh light loam and river sand in equal proportions, and two-thirds of thoroughly decayed and rotten cow-dung, so old as to have the appearance of black soil. These three ingredients, when well incorporated, are capable of growing the Auricula in robust health, and flowering it in constant perfection. All that is necessary is, to keep a stock of the ingredients on hand, to supply the demand for top-dressing and repotting.

With reference to the management of this flower, there is less difference among florists than as regards the nature of the compost in which it should be grown; all admit the advantage of imitating nature's proceedings as closely as possible: the frame or pit takes place of the covering of snow as a protection from cutting wind and intense frost, and the free drainage of the mountain heights is secured by the use of a sufficiency of broken crocks and charcoal. In the depth of winter, at such an altitude as they grow, little or no moisture falls upon them, being almost always in the state of crystalline snow, and from this circumstance the cultivator may take a hint to see that his lights are well glazed and secure at the laps, to prevent the ill effects which, as might be inferred, result from drip or excess of moisture. My pots are always placed on a thick stratum of ashes, spread over the bottom of the frame, which secures them from damp, as well as offers a pretty good obstruction to the progress of snails and slugs of every description. Under this protecting management, the plants will be preserved in health during the rudest blasts and storms of winter. With the first opening bud of spring they may be exposed to sun and air, unless the temperature be very low, or winds boisterous. The Auricula begins to make rapid progress as March comes in, and this is the best time to top-dress them, and indeed the only time during which they can receive much benefit from the operation. The way it is done is this: the soil must be removed as much as possible from the surface, consistently with the safety of the upper fibres of the roots (which will not bear much interference), and its place supplied with fresh compost of the description already pointed out. After this, water may be given once or twice a week with safety and advantage to the plants; it is best to give sufficient to moisten the soil thoroughly, rather than to pursue the plan of "little and often." The vigour of the plants will evince the propriety of the treatment, and as the season draws nigh for reaping the reward of the florist's pains, every precaution should be taken to protect the expanding blossoms from strong winds, which otherwise would speedily deteriorate their beauty, and spoil their rich velvety corollas; the power of the sun's rays must also be subdued by a screen, or their brilliance fades, and the "paste" will crack.

In full bloom, their rich and varied tints afford a pure source of gratification, on which I never gaze without being reminded of the beneficence which has strewn our path with such floral gems.

> "God might have made enough—enough
>   For every want of ours;
> For luxury, medicine, and toil,
>   And yet have made no flowers."

When the flowering season is past, and the Auricula ceases to grow with vigour, choose a convenient situation with a northern aspect, to protect the plants from the direct rays of the sun, and where they may be sheltered as well from heavy rain. It is a critical time, and the plants which have been confined in the frame are liable to sustain injury if exposed to such influences too suddenly; many plants are annually destroyed from this cause alone. If a stage, covered with lights overhead, and having a northern aspect, can be appropriated to this plant, it leaves nothing to be desired in this respect; at all events, it is easy to secure a few lights by means of temporary framework, and so secure the stock from such untoward casualties.

Early in August offsets may be removed and potted in the same compost as the parent plants, and it is the best time for repotting such as require it. The offsets taken at this time are not so liable to exhaust themselves, the wounds caused by the operation heal over more rapidly, and the old plants bear it better. Repotting is quite unnecessary to be done every year. I believe every other year is sufficient, as the soil in the pot is not generally exhausted in a single season. Plants that have had offsets removed require care in potting, to see that the soil do not cover the wounds about the necks of the plants, or they will infallibly damp off. In the wet and cold months of the closing year, the Auricula must be kept dry; look to the glazing of the lights in time, and thus guard against drip; let the pots stand on a dry stratum, and when it is absolutely necessary to give water, administer it with an abstemious hand.

On a future occasion I shall offer a few descriptive remarks on the best show varieties, and for the present take my leave of your readers with the single observation that no flower is more worthy of the florist's care than the "Beare's Ear" of our ancestors—our Auricula.

ON PREPARING THE CHRYSANTHEMUM FOR EXHIBITION.

BY MR. JAMES SUTTON, BEXLEY.

CHRYSANTHEMUMS are so hardy, and capable of suffering so much ill usage with almost perfect impunity, that it would appear to be almost unnecessary to say how they should be managed. Notwithstanding this, however, the great difference between growing for the garden and for exhibitional purposes may serve as an apology for offering a few remarks on managing them for show.

The natural habit of the Chrysanthemum is bad and rather untidy, most of them growing tall, and too often naked. When the plant is designed for exhibition much care should be exerted to correct this, and present a handsome specimen. If the plants are to be shown in pots, and the object is to have bushy specimens with many blooms, take your struck cutting, or a healthy sucker early in spring, and cut off the top within two or three eyes of the ground; let it have plenty of pot-room, and put it in the cold pit, where it may be shaded. It will begin to push out, and where one shoot takes much lead of the others, take off the top. By the commencement of May set the plants out of doors in a shady situation, or where at least they may be screened from the mid-day sun. Here they will require watching, and must have moderate watering, the pots being frequently turned round, as well to help the appearance of the plants as to prevent their striking root through the pot. As the shoots push out again, continue to shorten them until the plants have formed nice bushes, or are furnished with as many branches as may be desired. By the end of September set the plants in a frame, so as to be secure from early frosts. Before doing this, however, turn the balls gently out of the pot, to see how they are accommodated for pot-room, as it is essential to good growth that they be not cramped in the least. Such as require it should be repotted in good time, so that they may not have to be shifted at a more advanced period, when the buds are much expanded. In blooming-time, if a little behind the season, they may be placed in the greenhouse, where they will be hastened. When coming into bloom, water with a little manure-water, made from a shovelful of decayed cow-dung to three or four pails of water; it should be supplied with due caution, however, and after every third or fourth common watering will be sufficient. Plants thus treated make handsome specimens, and are noble objects, although the flowers will not be so large as when fewer of them are allowed to remain on the plant.

To obtain larger blooms it is a good plan to strike the top cuttings of a plant in July, and grow them in small pots in the open air, shifting them as the roots require it; these will bloom earlier than the others. After having a shift and being well watered, place them in a frame in September, where they may remain a while, and afterwards be placed in the greenhouse, where they will have a little increase of temperature, and their blooms will be developed to a much superior size to those on bushy plants grown as before specified. Being made from late cuttings, the plants will be much more dwarf than they would otherwise have been; early cuttings especially, when not made of the extremities of the shoots, would tend to produce tall plants. The cuttings taken off in July may be grown either in small pots, and afterwards shifted from time to time, or transferred at once to six-inch pots, on the one-shift system; the advantage of using small pots to begin with is, that we have a means of checking any tendency to over-luxuriance by lengthening the intervals of the several shiftings. To produce the largest-sized blooms, there is no superior plan to that of growing the early cuttings or suckers as luxuriantly as possible, without regard to the height of the plants; and when the blooms exhibited are to be cut, the habit of the plant is a matter of no importance. The early-struck cuttings should be placed in thirty-two-sized pots in rich soil, as soon as they will bear removal, and when fit, shifted into a larger size; and if they should not bloom before they have filled these pots, water them with dilute liquid manure every two or three days. All blooms intended for show must be screened from the effects of frost, which may come on unexpectedly: a greenhouse or pit is therefore indispensable.

Of the large-flowering show varieties the following are some of the best:—*Alfred Salter*, delicate pink, incurved, large and fine. *Annie Salter*, clear golden yellow, large. *Beauty*, peach-blush, incurved. *Calypso*, lilac, edged with white, incurved. *Christophe Colomb*, reddish violet, large, incurved. *Defiance*, white, incurved. *Dupont de l'Eure*, orange and carmine, incurved; a fine show flower. *Elizabeth*; incurved, white; very fine. *Formosum*, pale sulphur, incurved. *Goliah*, very large, incurved, white; a fine show flower. *Hermine*, blush, tipped with purple, incurved; a perfect gem. *Jenny Lind*, sulphur, yellow centre, incurved. *King*, light peach, incurved, large and fine. *Le Prophète*, golden fawn; splendid show flower. *Madame Poggi*, chestnut-crimson; an old but fine show flower. *Mars*, light red; a large, incurved show variety. *Miss Kate*, delicate lilac, fine *Pio Nono*, Indian red, with golden yellow tips; a fine, incurved show flower. *Queen of England*, splendid blush, incurved. *Rabelais*, carmine and yellow, incurved; a fine show variety. *Racine*, gold and brown tips, early and fine. *Rosa mystica*, creamy rose, incurved, good. *Stellaris globosa*, deep carmine and white, incurved; fine show flower. *Versailles Defiance*, bright rosy lilac, fine. *Vesta*, incurved, ivory-white. *Vulcan*, bright red-crimson; a very fine show flower.

Amongst the Anemone-flowered show flowers I can recommend the varieties named below. *Diamant de Versailles*, pure white guard petals, with a rose centre. *Fleur de Marie*, splendid snow-white. *Gluck*, splendid golden yellow, large. *Madame Gorderau*, fine sulphur. *Madonna*, sulphur-yellow, with a deeper centre. *Marguerite d'Anjou*, fine nankeen. *Marguerite de York*, canary and dark yellow. *Nancy de Sermet*, beautiful pure white; fine form *Reine Marguerite* (F.), large, fine yellow. *Rose Marguerite*, bright rosy guard petals, with a light centre; very distinct.

From the above lists, which contain all the best in each class, the amateur will be able to select a very distinct and fine collection, and may compete at the autumn Chrysanthemum shows with every chance of success, if the remarks on their culture be followed up.

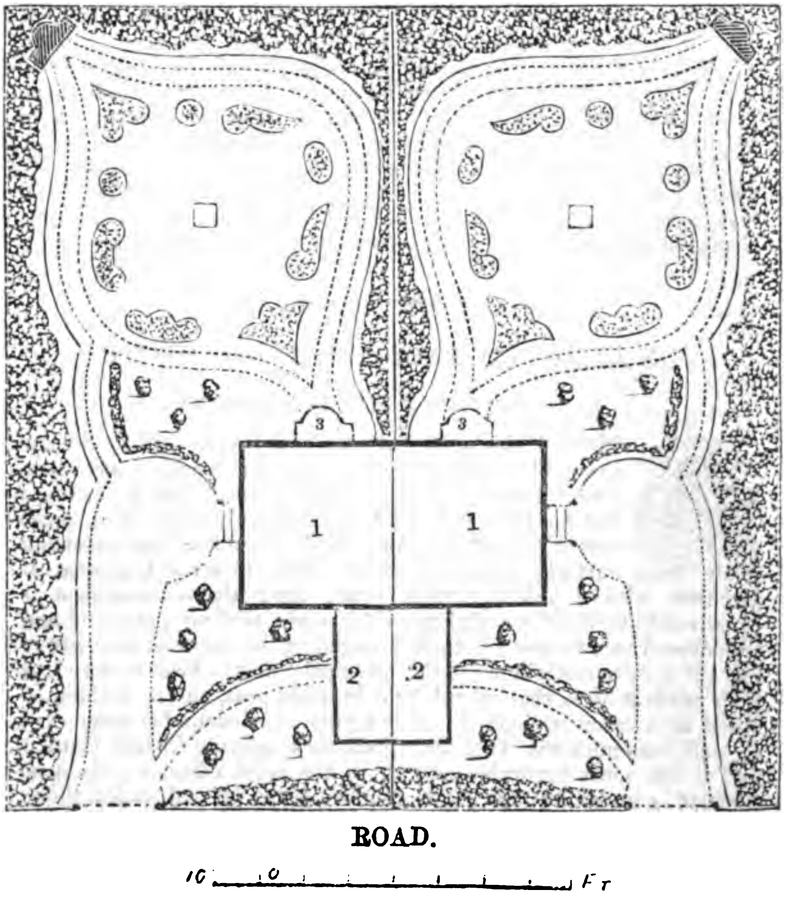
ON GARDENIA RADICANS AND FLORIDA.

BY A NOBLEMAN'S FLOWER GARDENER.

AMONG the most delicate and fragrant early flowers these Gardenias may be classed; for they are now forced forward in abundance to meet the demands of our markets and gardens, and cultivated to a great extent for cut flowers. Both the above species strike freely from cuttings placed in silver sand, under bell-glasses, if favoured with a gentle bottom heat; their after-management is equally simple, if, after sufficient root is made, they are potted off and transferred to a common hotbed, plunged to the rim, and kept growing till they actually flower; the principal thing to bear in mind in their cultivation is, that they delight in moist peat, and in nothing so much as a common hotbed. A few pots in a cucumber frame will do well, insomuch that they who grow for supplying Covent Garden find it the most profitable as well as the most effective; the heat afforded is just what the plants require, keeps off red spider, thrip, mealy bug, and other entomological pests, to which they are so liable in the stove. When the plants are large, they should be transferred to a moist stove or orchid-house, or they are in danger of receiving a check they do not get over without considerable care and trouble, and frequently not at all. If cuttings are taken off at the time when last year's shoots have made all their growth, they will root and flower before they are more than three inches high, and even in thumb-pots, although for specimens this would not be allowable. Few plants surpass them in delightful fragrance, and they yield an abundance of lovely blossoms at a time when they are very serviceable.

DESIGN FOR THE GROUNDS OF TWO SMALL VILLAS.

BY T. RUTGER, ESQ.



SMALL villa residences are occasionally attached in couplets. The accompanying design embraces rather more than half an acre. The garden fronts of the houses are intended to be entered through a plant-cabinet, or small conservatory. From the coach-entrances there is a walk leading to the domestic apartments of each house.

The houses are supposed to be elevated, and are entered through a porch with steps. In the corners of the shrubberies there is a small summer-house to each, and a site indicated on the lawn for a vase, or for some article of embellishment.

Reference. — Fig. 1 1, house; 2 2, kitchen department; 3 3, plant-cabinet, or conservatories.

SEASONABLE HINTS ON THE PELARGONIUM.

BY MR. JAMES CLARKE, NUTFIELD, NEAR REIGATE.

WHILE the display of bloom which the present season has afforded is fresh in the minds of cultivators, I avail myself of the occasion to submit a few seasonable hints to the readers of the *Cabinet*, with the full assurance of their utility, and the conviction that this favourite flower cannot be grown to so great advantage under any other system; in this opinion my experience fully bears me out.

At no other period is the future success of the cultivator so much at stake as from the present time to the close of the year. When the plants have been cut down, and as soon as they have pushed shoots to a sufficient length for them to endure the operation of disrooting, not a day should be lost in performing it, after which every encouragement should be given to assist their progress and growth before the close of the year. That this is most essential to the production of bloom no one will question, neither does it require a repetition of facts to establish what must be self-evident; for if left to form both their wood and flower in the ensuing year, neither is brought to perfection. Where such is the case, all possible means are employed to obtain growth, and thus the quantity, as well as quality, of the blooms becomes impaired, and are necessarily inferior to those plants that have had their growth promoted during the autumnal months.

While on this subject I may also refer to over-potting the Pelargonium, which I consider generally objectionable; its effects are distinctly shown, in most instances, by long shoots and a very flexible growth—a deformity open to the censure of all having any pretensions to floricultural skill. Frequent and judicious shifts—the beneficial exposure of every part of the plants to the influence of sun and air, watering, and careful attention in tying and shaping them, are the principal points to be attended to in their after-management. As they are coming into bloom, shading is an almost indispensable requisite, although, where the foregoing system is acted on, this will be found less necessary. The best time to flower the Pelargonium is from the middle of May to the close of the third week in June.

EXHIBITION OF THE ROYAL BOTANIC SOCIETY, REGENT'S PARK.

THE last floral fête of the season took place on July 1, under rather unfavourable circumstances arising from the state of the weather, consequently, as might be expected, the number of visitors was not nearly so great as is generally the case. The display of plants was good, however, and the same may be said of the fruit. Collections of stove and greenhouse plants were in abundance and in good condition, comprising *Allamandas* in fine bloom, *Ixoras*, *Heaths*, *Dipladenias*, *Rondeletias*, *Pleromas*, *Epacrises*, etc., and an immense specimen from Mr. Green, gardener to Sir E. Antrobus, of *Meyenia erecta*, nearly six feet high, covered with its lovely blossoms, excited great interest. *Orchids* were contributed by the usual exhibitors, the best being from Dr. Butler, of Woolwich, reflecting great credit on his intelligent gardener, Mr. Keel. Messrs. Veitch had also a fine group, in which we noticed two plants of *Saccolabium guttatum*, one with sixteen long spikes of its lovely blossoms. Plants with ornamental foliage were well represented by several exhibitors; the finest came from Mr. Parker, of Hornsey. Mr. Salter, of Hammersmith, showed an interesting group of hardy variegated plants, deservedly admired. *Cape Heaths* were very good, and *Fuchsias* also; Mr. Bray, gardener to Baron Goldsmid, showed a group, each plant clothed from top to bottom with flowers, and ranging from six to eight feet high. The collections of cut blooms of *Roses* were in great number, and highly admired: one variety only, *Lord Raglan*, need be specially noted here; its blooms were very fine and large, of a brilliant scarlet—indispensable in every good collection. *Ferns* were in excellent condition and in considerable numbers. The *Pelargoniums* were scarcely so good as at the previous exhibition, but comprised a few promising novelties. Among new plants Mr. Epps showed *Acer Negundo*, a variegated Maple; Messrs. Veitch, *Thujopsis dolabrata*, and the white *Ixora acuminata;* Mr. Matthews, of Clapham, had fine specimens of *Lilium excelsum*, with buff-coloured flowers; Mr. Smith, of Hornsey, a new white corolla *Fuchsia*, very pure, and of good form, named *Princess of Prussia;* Messrs. Jackson, of Kingston, two new Orchids, one an *Anguloa*, with creamy white blossoms. A few *Pinks*, *Pansies*, and *Balsams* were fine. Mr. Watson's new double purple *Petunias* were large and showy, as were some variegated-flowered varieties.

Following so nearly on the previous exhibitions, a more extended notice of the present is unnecessary.

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GRAFTING-WAX.—Take four proportions by weight of pitch, an equal quantity of resin, two of bees' wax, one of hog's lard, and one of turpentine; melt and mix them well; spread it on brown paper, which, when cut into strips, can be easily applied.—*Nemo.*

ON ROSE-STOCKS, AND BUDDING.

BY MR. HENRY DYER.

IT may not be out of place perhaps at this season to offer a few remarks on the management of Rose-stocks in summer, together with a hint on budding them, more especially as early in this month is the best time for performing the operation.

The number of stocks collected every winter for budding on has now reached a prodigious amount, and the number of those who bud their own plants has also vastly multiplied. When we consider the enchanting grace and beauty of this favourite flower, and the ease with which varieties may be propagated by budding, we need not be surprised at such a result.

Autumn, and even through the winter as late as January, is the proper time to collect stocks; previous to planting, let them be trimmed, but not too closely, at the root, so as to leave but little of the old stump, cutting off all decayed parts. The stems are to be cut to the required height, a short distance above an eye, sloping a little from it, and then they are ready for planting in a rich soil. They will make an abundance of fibres, and during the ensuing summer produce a number of shoots on which to operate in budding. Although it is a very general practice to trim the stocks to the few branches required for budding on, and frequently to cut in these, it appears to me contrary to sound practice, and the principles of vegetable physiology; for where the branches are shortened and the lungs of the plant (the leaves) nearly if not entirely got rid of, the sap remains in the cells of the stock in a crude state, and the following spring it often happens that the buds fail or the stock dies off; especially is this the case when the more delicate kinds have been budded, as Tea, Bourbon, and China Roses. The vigorous kinds have a better chance of taking hold, though not so well as if the branches had been left unmolested. My practice is to leave the stocks to grow, and when budding to remove only such leaves, and other parts as happen to be in the way; on this plan it will be found the buds "take" more readily than by the old plan. The stocks need no further attention until the buds have united, when they require to be untied; the branches may be left entire to the commencement of the following March, when such as are unbudded should be cut in close to the stock or branch, and the budded ones shortened to about four inches from the bud. Where the stocks have been allowed to grow and elaborate sap, the effect is surprising, to see the luxuriant shoots made from the bud during the first season.

The proper time for budding depends, in a great measure, on the condition of the stock and buds: July and August are in general the fittest months. The Dog-rose, generally used for working on, may be budded at this time and through September; though in this case a great deal depends on the weather and the free growth of the stocks and buds. Those Roses that perfect their growth early, as Gallica, Provence, Moss, Damask, and Austrian, are best budded in August, while the stocks that are late, and those of luxuriant growth, as Manetti and Crimson Boursault, succeed better if worked in September, choosing warm weather, when they take readily; Perpetual, Noisette, Tea, Bourbon, and all the autumnal Roses of late growths, for which the Manetti Stock is so excellently adapted, may be worked during the latter month. When autumnal Roses of the classes just mentioned are intended to be budded as standards on the Dog-rose, they may be worked as early as July or August, and with considerable advantage.

NOTES ON SEED AND SEEDLINGS.

BY AN OLD AMATEUR, MIDDLESEX.

THERE was a time when, with all the enthusiasm and jealousy of the old school, florists indulged in the dog-in-the-manger-like feeling that induced them to throw away or destroy any really good seed rather than sell it or give it away, so that others might have a chance of raising new varieties equal to their own. In my past experience I have known many whom nothing would induce to part with a single grain of seed that was at all likely to produce a good flower, yet it was not bad feeling that produced this exclusiveness. If Hortulanus were lucky in his Pink seed, and saved an ounce instead of a few pods, he could not find room to sow perhaps a twentieth part of it, nevertheless he had an excellent chance of producing a good novelty among the few that he could sow and grow; but if he let out his seed, he would be giving a rival, or a dozen rivals, an equal chance of beating him, therefore nothing would induce him to part with any portion of it. Put forty years to a man's life, and he thinks differently; for times have changed, and much of the selfishness and exclusiveness so prevalent at that time has vanished, and it is much easier to obtain good seed than formerly. In consequence of this, a marked improvement has taken place, and really good flowers are produced in an increasing ratio. The late Mr. Baron raised the character of the Hollyhock from a coarse, flimsy, and almost worthless flower to very near perfection; Mr. Hunt, of Wycombe, did the same with the Sweet William; Mr. Thompson, of Iver, was equally successful with the Pansy, and Mr. Glenny with the Balsam. Mr. Baron was one of the first liberal men who let his seed go among the florists, and every one who purchased it raised good flowers. Mr. Hunt presented his seed to a nurseryman, but from want of care the improvement stopped, and has not since been equalled. Nothing is easier than to lose high ground if we are careless. To take a case in point: a gentleman, with whom I am well acquainted, purchased six classes of Balsam seed, but, in ignorance of which were the proper flowers to save seed from, he saved all he could, even when the plants, which were many of them ill grown, had exhausted their strength and were bearing weakly on their lateral branches, which always seed freely; he saved even the pods from the semi-double blooms. Here, then, the character of the seed was destroyed; yet he advertised his seed as obtained from the stock of the party he had purchased it of, and even gave it away under the same high character, a proceeding not only damaging to the fame of the grower, but leading to disappointment and distrust. This arose entirely from ignorance of the proper principles of seed-saving. Paying a visit the last season to Mr. Glenny, who has raised the finest Balsams I ever saw, I found in his possession twelve hundred potted plants in fine condition, and furnished with magnificent blooms. From this stock, as I was since informed, that gentleman saved but four ounces of seed that he could depend on as first-rate, and two pounds that was of a more doubtful character, and which he refused to let out. It were much to be desired that growers generally would imitate the foregoing examples; then reliance could be placed on having something good, and we should be saved the vexation and, too frequently, disgust which arises when inferior flowers are so generally raised from seed supposed to be the best that is to be got; and, nevertheless, saved from weakly and worthless flowers, mixed perhaps with some that is really good, although, under such promiscuous saving, the proportion is very small indeed.

I would urge amateurs to save seed themselves, and always have a little to spare. Let them obtain a few of the very best plants they can get, whether Dahlias, Hollyhocks, Pansies, Pelargoniums, Antirrhinums, Sweet Williams, Pinks, Carnations, Picotees, Tulips, Auriculas, Polyanthuses, Calceolarias, Verbenas, Cinerarias, Petunias, or any other flower they delight in, or that they would be famed for; grow them together, but away from all other inferior plants of the same family, and save the seed. It may be they obtain but a few grains (for the higher the breed, the less are the plants inclined to perfect their seeds), and raise novelties for themselves. When they have done all they can, and have made use of the best means, there will always be plenty of inferior character among the progeny, and indeed worse than the parent plants; the amateur may proceed, however, with a well-grounded hope that he will speedily obtain a few worth keeping. On the other hand, if seed be saved from the best plants, and there be inferior ones in the neighbourhood, his hopes will be disappointed: so much more influential is a common thing than a good one, that it will often spoil the whole. It is a very common practice for those who grow quantities of anything, to go over the stock, and mark the best to save seed from separately. They might as well save it from the whole, however; and such persons wonder at their produce being so inferior. A double blue Convolvulus has recently been introduced from Germany, and of this I obtained seed, and sowed a quantity for curiosity; it happened that out of three dozen plants I obtained but five double-flowered ones, and those showing single blooms I pulled up as soon as they showed themselves, leaving the double to seed by themselves. Perhaps the produce from these will come more true to their character; but there can be little doubt that the German seeds were saved from double flowers, merely marked for that purpose, and left to grow among the mass of single ones by which they were surrounded. The invariable rule should be to save seed as long as you please from first-rate flowers removed from the influence of inferior ones; for if there be a space that bees or flies can thrust their trunk into, or introduce a leg so as to reach the pistillum or point of the seed-vessel, you will not fail to have plenty, indeed a great majority, of worthless flowers among the produce. Some flowers may be profitably fertilized by ourselves, simply applying the pollen or dust from the anthers of one flower to the pistillum of another, before it has had a chance of being impregnated by others; but if we select flowers of good properties and different colours, and grow them together, the insects will often do the work better than we can. If any one be ambitious to improve an annual, and is therefore obliged to begin by sowing seed, let him pull up any plant that is no better than ordinary, as soon as it shows flower, to distinguish its character; where there is a visible improvement let it stand, and continue to destroy the rest. When this rule is followed for a few seasons, the result will certainly be most gratifying.

NOTES ON HARDY EVERGREENS.

BY CLERICUS.

(*Continued from page* 150.)

PINUS LARICIO, Corsican Pine.—A very valuable timber-tree, and a noble ornament for large grounds. It is remarkable for its large spreading roots, which often creep above the surface of the soil; it attains a height of a hundred or a hundred and thirty feet, and is of rapid growth, reaching maturity in about seventy years. The leaves are much longer on young trees than on old ones, being in one case about four inches, and in the other about half that length, twisted, and of a dark, intense green. The cones are egg-shaped, sometimes slightly curved, four inches long, Sienna brown, frequently two or three together, borne horizontally. Its wood is very resinous, and the bark sometimes peels away. From Corsica, Sicily, Spain, Calabria, and Greece.

P. pumilio, Mountain Pine.—At a great elevation this forms a low spreading bush, and even in other situations it rarely attains more than from twenty-five to forty feet. The leaves are from one to two inches long, stiff, curved, and often twisted; cones an inch and a half long, blunt; branches slender, the lower ones creeping, and sometimes rooting in the ground. It inhabits Switzerland and the central parts of Europe.

P. resinosa, Resinous Pine.—The clear red colour of the bark of this species has given it the common name of Red Pine, and in North America the immense forests of this tree have a grand effect. It grows from seventy to eighty feet high, and averages, when full grown, two feet in diameter of trunk. The leaves are six inches long, collected in bunches or tufts at the ends of the branches, differing in this particular from the Corsican Pine, to which it has in other points some resemblance; cones two inches long, upright, sometimes singly and occasionally two or three together. Its wood is much esteemed.

P. uncinata, var. *humilis*, Mhugo Pine.—Inhabits the mountainous districts of south-western Europe. It is a very dwarf species, averaging only six or seven feet, forming a much-branched, low tree, and composing almost impassable thickets in its native localities. The leaves are placed very close, from one to one inch and a half long, slightly curved; cones small, roundish, scales destitute of hooks. This variety is suitable for grounds of limited extent.

P. cembroides, Cembrian Stone Pine.—Highly ornamental, and well deserving cultivation in limited grounds, as its growth rarely exceeds twenty feet; its slender branches are produced in whorls, the leaves rather more than an inch long, light green, and covering the branches closely; cones from two to three inches long, somewhat ovate and conical; bark nearly smooth. It inhabits mountains in California, growing at an elevation of 10,000 feet, and is therefore perfectly hardy with us.

P. Fremontiana, Fremont's Stone Pine.—Like the preceding, this is a dwarf-growing kind, from California, reaching about the same height when full grown; the trunk from eight to ten inches in diameter. The leaves vary from one to three inches in length, of a bright shining green, more or less curved; cones two inches and a half long, ovate, glossy brown. The seeds are eaten by the Indians, and have a pleasant flavour of almonds. Fremont's Stone Pine is found on the sides of the Great Snowy Chain, in California, extending over a length of three hundred miles. Very ornamental.

P. Pinea, Italian Stone Pine.—A tree of slow growth, but of very peculiar appearance, contrasting well with others. When full grown it forms a flat spreading head, and bears but few side branches. The leaves are dense, of a deep green, the young ones whitish, from seven to eight inches long, and the bark reddish brown; cones ovate or roundish, nearly six inches long, and arrive at maturity the third year. Its seeds are white, of an agreeable taste, and nearly an inch long. It is a native of the shores of the Mediterranean, and grows from fifty to sixty feet high.

Araucaria excelsa, Norfolk Island Pine.—This striking tree is now well known, and although not perfectly hardy, as a little protection in winter is required, especially for young plants, it is indispensable in every choice collection of trees and shrubs. In Norfolk Island it is a very lofty tree, reaching two hundred and thirty feet in height, with a perfectly straight trunk, which is free from branches up to about one hundred feet, and bears a pyramidal head. Young trees are very beautiful objects, with horizontal spreading branches in whorls, closely set with foliage. As the trees increase in age, the branches become pendulous. The leaves are about half an inch long, of a light green; the cones from five to six inches in diameter, almost globular, of a light brown colour.

Cunninghamia Sinensis, Chinese Cunninghamia.—This species will stand our winters in a sheltered situation, and there forms a handsome middle-sized tree, with branches in whorls, the upper ones ascending, and the lower horizontal. The leaves are stiff and sharp pointed, about one inch and a half long; the cones are small, about the size of a walnut, round, and drooping. It inhabits the southern provinces of China, and is also cultivated in Japan.

No. II.—The Cypress Tribe.

Thuja orientalis, Chinese Arbor Vitæ.—A well-known handsome shrub, very suitable for forming hedges, being of a compact upright growth. In its native countries, China, Japan, and the islands of Niphon and Sikok, where it is found in rocky situations on the mountains, it forms a large tree.

T. pendula, Weeping Arbor Vitæ.—A very elegant plant, indigenous to Mount Halkan, in Japan, and is extensively grown there as well as in China for its very graceful and ornamental habit. It is perfectly hardy, and forms a small tree, from ten to twelve feet high.

T. cuneata, Chili Arbor Vitæ.—A very beautiful hardy species, of rapid growth, forming a tall tree in some situations in the cool valleys of the Andes of Southern Chili. It somewhat resembles an upright Cypress in growth; foliage a shining green.

FLORA OF THE INDIAN ARCHIPELAGO.

THERE is scarcely any part of the globe more richly adorned with floral gems than the islands of this group. The most conspicuous are those of Borneo, Sumatra, and Java. Here Nature has strewn her richest gifts; there is no form of magnificence and beauty under which she does not present herself, from the quiet loveliness of the secluded valley, to the grandeur and sublimity of an alpine landscape. "You breathe," says an old author, "in the Eastern Archipelago an air impregnated with the odours of innumerable flowers of the greatest fragrance, of which there is a perpetual succession the year round, the sweet savour of which captivates the soul, and inspires the most delightful sensations. The inhabitants of these spots are passionately fond of flowers; there, females are never considered dressed unless decorated with a profusion of them, and when any beautiful thing is to be expressed, the name of some flower is made use of."

The prevailing colours of the floral productions in these islands are yellow and red, though other tints are frequently seen. Some of the most showy of the Indian flowers are produced on large trees, although great quantities grow on shrubs and humbler plants. Creepers and climbing plants are here found in great abundance; their perfume is generally oppressive and heavy when near, but when inhaled at a distance they are found to be of the sweetest odours.

The island of Borneo produces many gaudy and elegant flowers. One species of Rhododendron may well be termed gorgeous; it grows with its roots twining around the trunks of the forest-trees, and bears large heads of flowers of pale but rich yellow to a reddish salmon colour, which in the sun sparkles with the brilliancy of gold. There are several other species of this showy tribe—crimson, red, and mixtures of the two colours. The Clerodendron here forms a shrub ten to twelve feet high, bearing at the end of every branch a loose spike of rich scarlet-crimson flowers, projecting two feet above its foliage. The stems are red, while in the centre of every flower is a white spot, the whole forming a handsome pyramid. When this shrub has gone out of bloom there remain on every stem four-seeded berries, of a deep blue, which, contrasting with the crimson stalks, render the plant as gaudy and attractive as when in full bloom. There are also varieties of the Clerodendron with white and scarlet coloured flowers. The Bringa Kasihan (*Cœlogyne*), or "Flowers of Mercy," are highly fragrant, tinted with delicate white and orange. There are many beautiful flowers which grow most abundantly on the banks of the Bornean rivers, amongst which is a very fragrant Bignonia. Of climbing plants, this island produces a great abundance, one of which, a Bauhinia, is totally new and undescribed; when in full bloom it bears luxuriant clusters of gaudy crimson flowers. The *Hoya imperialis* has been found loaded with bunches of its purple and ivory-coloured blossoms. Another of the same genus, named after the Earl of Auckland, is hung with bunches of a large size and rich hue.

In the woods many beautiful parasitical plants are seen. Captain Mundy mentions some of them, adorned with lovely blossoms, completely wrapping themselves in close, thick matted folds round the supporting trunk, which they continue to encircle until it perishes in the close embrace, and moulders into a heap of vegetable matter.

Several species of the curious Pitcher-plant (*Nepenthes*) inhabit these islands. The *N. Rafflesii* grows on the rocky islands in the neighbourhood of Singapore, and seldom exceeds five feet in height, while the species named after Sir William Hooker is found in the bottom of deep jungle-valleys in Borneo, climbing to the top of lofty trees. Some of the pitchers, at the extremities of the leaves, will hold a pint of water. Two species have been observed: one deep green above, and reddish peach colour beneath, and the other green, spotted and speckled with purplish red.

N. ampullacea is also found here; it is a climbing plant, the stems drop by degrees from the supporting trunk, and moulder on the ground, when they are covered in a short time with vegetable matter, which forms a coating of earth about them; from this spring numerous shoots, which in time become new plants, and the spot of ground is thus gradually covered with a carpet, as it were, of these curious formations, over which are scattered a number of the pitchers, and, as the leaves gradually develope, wither and disappear, when the plants begin to flourish luxuriantly and climb among the trees.

(*To be continued.*)

NOTES ON NEW AND SELECT PLANTS.

PUYA VIRESCENS. Nat. Ord. *Bromeliaceæ.*—A plant of very little beauty, bearing spikes or scapes of greenish white flowers two feet high, in March. It is a native of some part (the exact locality unknown) of South America, probably Venezuela or New Granada, and requires stove treatment. The plant is of moderate size, the leaves pale green, Yucca-like, from one and a half to two feet long. (*Bot. Mag.*, 4991.)

92. Rhododendron Veitchianum. Nat. Ord. *Ericaceæ.*—Our readers will have already become acquainted with this fine plant from the notices of it inserted in the accounts of the exhibitions at the Crystal Palace and Chiswick Gardens. It is a small or moderate-sized shrub, the branches covered with smooth, shining red or deep brown bark; the leaves obovate, from three to four inches long; the flowers are borne three or four together, very large, measuring five inches and upwards across the mouth of the corolla, which is pure white, with a stripe or tinge of green at the base of the upper lip; the margins are curled and crisped, much resembling *Azalea crispiflora* in this respect. Messrs. Veitch, after whom the species is named, introduced it from Moulmein. (*Bot. Mag.*, 4992.)

93. Dendrobium crepidatum. Nat. Ord. *Orchideæ.*—A very beautiful Dendrobium from Bengal. The blossoms, which measure about an inch and a half in diameter, are creamy white, the petals and sepals tipped with pale rose, and the centre of the labellum widely blotched with golden yellow. Although resembling in some degree *D. cretaceum*, the flowers of this species are considerably larger, and the

petals and sepals broader, and more rounded at the apex. It is a desirable addition to this lovely tribe. (*Bot. Mag.*, 4993.)

94. Doronicum Bourgæi. Nat. Ord. *Compositæ.*—M. Bourgeau detected this highly ornamental greenhouse plant at Barranco del Angostura, in the Canary Islands, in 1855, whence seeds were forwarded to the Kew establishment, where plants have bloomed profusely. It is much like a Cineraria both in flower and habit, differing, however, in minute botanical peculiarities unnecessary here to mention. The flowers are light purple, with a deep crimson or maroon-coloured eye, borne in large corymbous heads. It grows from one and a half to three feet high. (*Bot. Mag.*, 4994.)

95. Forsythia suspensa. Nat. Ord. *Oleaceæ.*—An improvement on the well-known *F. viridissima*, the segments of the corolla being broader and larger, and of the same golden hue. This appears to be the original species on which the genus was founded, although named by Thunberg *Syringa suspensa.* It was introduced by M. Verkerk Pistorius into Holland as far back as 1833, but does not seem to have been brought into this country until recently. Notwithstanding its being obtained from Japan, it grows there only in a state of cultivation, and is, doubtless, indigenous to China. It forms a straggling much-branched shrub, of somewhat pendulous habit. When trained against a wall it has a handsome effect, producing its rich large flowers before the leaves make their appearance. (*Bot. Mag.*, 4995.)

96. Cirrhopetalum Cuminghii. Nat. Ord. *Orchideæ.*—An early spring-flowering Orchid, which originally bloomed in this country with Messrs. Loddige as far back as 1841. It owes its introduction from the Philippine Islands to Mr. Cuming, whose name it bears. Its flowers are arranged in a small depressed umbel, spreading in a semicircle, and are of a rich reddish purple colour. (*Bot. Mag.*, 4996.)

97. Bryonia laniosa. Nat. Ord. *Cucurbitaceæ.*—This plant, although possessing no very attractive flower, is, nevertheless, in leaf and fruit; the latter is of the size of a small cherry, perfectly spherical, banded and marbled with white on a bright green ground. It is half hardy, and has a pretty effect when trained on a trellis. It is a native of Ceylon, and therefore requires to be raised in a rather warm temperature early in the spring, without which precaution it will not ripen its fruit in this climate. It is a vigorous grower, and was cultivated at Paris, at the Museum of Natural History, in 1855. (*Flore des Serres*, 1202.)

98. Lilium sinicum. Nat. Ord. *Liliaceæ.*—Introduced in 1824 to the gardens of the Horticultural Society, but was afterwards lost. It has been reintroduced by Mr. Fortune, who forwarded it from China to Messrs. Standish and Noble, of Bagshot, where it has again flowered. A dwarf-growing species, not exceeding about a foot in height. The flowers, which are produced in an erect, loose raceme, are three inches across, of a rich orange-scarlet. It is a good acquisition to this numerous and beautiful family. (*Flore des Serres*, 1206.)

NEW AND SELECT GARDEN HYBRIDS.

AZALEA AMŒNA LATERITIA. This is a hybrid between *Amœna* and *Lateritia*, the flowers of the same colour as the last named, but resembling the former in its "hose-in-hose" corolla, of good shape and substance, and very free blooming.

64. Azalea Amœna Grandiflora differs from the above in colour only, being a rich carmine-lake.

65. Azalea Amœna Floribunda.—The foregoing description applies to this variety, with the exception that it is a flower nearly double the size, and of a delicate clear blush, or light pink. A very free bloomer.

66. Chrysanthemum, Desdemona.—Fawn and salmon, large, double, and very fine.

67. Chrysanthemum, King of Anemones.—Large crimson-purple, Anemone-formed, very distinct in colour. and a fine flower.

68. Chrysanthemum, Madame Sentir.—Pure white, Anemone-formed; a perfect gem.

69. Chrysanthemum, Margaret of Norway.—A large Anemone-formed flower, with light red guard petals, and golden yellow centre.

70. Chrysanthemum, Ninette (Lilliputian).—Sulphur, very double, almost a ball; blooming pyramidal; fine, and of quite a new character.

The above have recently been sent out by Mr. Salter.

71. Rose, Bacchus.—A seedling from the well-known *Géant des Batailles*, and, like its parent, of a vivid crimson-scarlet, large and full; its splendid blossoms are well formed, and borne very freely, remaining a long time in perfection, and die off a rich vinous hue, without the faded appearance so objectionable in *Géant des Batailles*. It has received several prizes at the principal exhibitions, as the Crystal Palace, Royal Botanic Society, and others.

FLORICULTURAL OPERATIONS FOR AUGUST.

IN THE FLOWER GARDEN.

General Operations.—*Borders*, fill up spaces, where bulbs have been removed, with autumnal annuals in pots. *Divide* perennials and choice plants. *Edgings*, clip box in wet weather. *Grass*, mow and roll every week. *Gravel*, weed and roll. *Hedges*, clip and trim, choosing moist weather. *Seeds*, gather as soon as they ripen, sow hardy seeds in pans and boxes. *Sticks*, place to tall-growing subjects, and tie up regularly. *Surface soil*, continue to stir. *Turf* may be laid down. *Verges*, trim. *Water*, during this hot month will be very necessary; evening is the best time, and rain-water should have the preference. *Weeds*, eradicate as soon as they are large enough to take hold of, and hoe during hot days.

Cultural Department.—*Alpines*, gather seed, and sow in pans or boxes; water the plants freely till cooler weather sets in; divide strong plants, and keep the rockery free from weeds. *Auriculas* may be repotted, but it should be done with care, so as to avoid injuring the fibres; shift young plants without breaking the ball; loosen surface soil, fumigate, and supply more freely with water. *Carnations* and *Picotees*, layer, using light sandy soil; look after thrips and earwigs; as the pods are formed, and ready to open, secure them from bursting with a ring of India-rubber, or a piece of bass; shade when in flower, and do not allow the plants to suffer from want of water. *Chrysanthemums*, water freely, and layer such as are desired to increase stock. *Dahlias*, secure the buds or young blooms likely to be good, from rubbing against the foliage, by tying them to stakes or branches. Be careful to keep down all insects, more especially earwigs, which may be done by placing small pots, half filled with moss, on the tops of the stakes, searching them every morning. Shade flowers as they come out. Attend to watering liberally in the evening. *Fuchsias*, those that are out of flower place out of doors. *Hollyhocks*, see they are well tied up, water freely, and take off cuttings. *Lilium lancifolium*, when coming into flower, should have a liberal supply of manure-water; see they are kept well tied up. *Pansies*, save seed from the early-blooming beds, and sow immediately; the plants become strong before the end of the season, and will bloom vigorously next spring; put cuttings in early in the month. *Pinks*, save seed, and cut away dead flower-stems; transplant seedlings and pipings. *Polyanthuses*, divide, and pot in a mixture of the compost prepared in May; water, and plunge in ashes under a north wall or fence; in dividing the plants it is best to rend them asunder by the hand, as they never do well if cut with a knife; sow seed. *Ranunculuses*, *seedlings*, take up the roots as soon as ripe, place them in a box with fine sand, and preserve them in a dry place till the time of planting. For autumnal planting of *Ranunculuses* this is the best time to prepare the beds; let there be two feet of good soil at least, and they will require fresh compost each year to the depth of about nine inches; the subsoil is then turned up roughly a spit in depth. Allow the beds to remain a few days, and then put in about four inches deep of old cow-dung, well broken, among which sprinkle some newly slacked lime, finely sifted, to destroy worms. After this rake the dung level and fill up with the soil intended. A rich, clayey, friable loam is best for the subsoil, and a light rich soil for the surface. *Roses* may still be budded, selecting moist or cloudy weather for the operation. Thin away all surplus branches from stocks not budded, and get the branches strong and healthy. Put in cuttings, and save seed. *Tulips*, prepare ground for offsets; look to the stock of bulbs, and if any specks of rust or canker be found, remove it carefully with a sharp knife, and continue to keep a look-out for this destructive pest until they are again planted. *Verbenas*, take off cuttings of those varieties intended for next year's growth; peg down; water in dry weather, and save seed.

IN THE GREENHOUSE, COLD PIT, AND FRAME.

GENERAL OPERATIONS.—*Air*, afford plenty of air both day and night. *Budding and grafting* may still be performed with *Oranges*, *Camellias*, *Azaleas*, etc. *Fumigate*, or the green fly will soon commit ravages among healthy stock. *Greenhouse plants* may generally be placed out of doors in a sheltered place, and moss covered over the pots will preserve moisture in the soil, as well as keep the pots cool; syringe them frequently overhead, to keep down green fly. *Propagation* of stock may go on with most things at this time. *Seeds*, gather as they ripen. *Shade* as directed last month, but only when the sun is out. *Shifting*, finish as early as possible. *Water*, continue as last month. See that houses and pits are clean and in good order.

CULTURAL DEPARTMENT IN THE COLD PIT AND FRAME.—*Annuals*, *half hardy*, sow for in-door bloom during the approaching autumn. *Cobæa scandens* and *Calampelis scaber*, take off cuttings early in the month, and insert several in a 48-sized pot, in a mixture of loam and sand. Plunge the pot up to the rim in a hotbed, and give very little water till they begin to grow. As soon as they have pushed shoots an inch long, remove them to a cool frame for two or three weeks. *Cyclamens*, remove, take out of pots, shake off the soil carefully, and plant them in a sheltered border, where they may remain until the appearance of frosty weather. *Mignonette*, *for winter*, shift into six-inch pots, and shade them; should the shoots be very close, peg down, stop frequently, and give water in moderation; *Tree*, re-shift into larger pots, cut off all flower-buds and lateral shoots that appear till December, they will then have attained several feet in height, and may be allowed to flower. *Nicotiana*, sow seed towards the end of the month in pots of light, rich, finely sifted soil, just enough to cover them, and place in a hotbed. *Pentstemon speciosum*, this seeds freely, and ripens towards the close of the month. The seed should be sown in pots or pans, in a compost of loam and sand, as soon as gathered, for if kept till spring, the plants rarely come up till the following year. Place the pots in a cool frame, where they may remain through the winter. Those raised last year will now require shifting into larger pots, allowing plenty of air and water. *Roses*, see last month's directions.

CULTURAL DEPARTMENT IN THE GREENHOUSE.—*Azaleas*, and other plants of this class that have set their buds, may be removed out of doors to a sheltered situation. *Calceolarias*, repot and place in the shade. *Chrysanthemums*, procure a stock *now* of any desired; stop the leading shoots, if bushy specimens are wanted. *Ericas* and *Epacrises*, when out of flower cut them in judiciously, to make them bushy. *Pelargoniums*, the plants that were cut down last month, and are now broken sufficiently at the eyes, may have the soil shaken off, and be disrooted, after this they should be placed in a close frame, or gentle bottom heat, until again rooted to the sides of the pots, then give plenty of air, but shelter from heavy and sudden rains. Shift and stop cuttings that are well rooted. Seed may be sown as soon as ripened; cover slightly with soil, and when required, water with a very fine rose or brush; when sun is strong, shade.

IN THE STOVE.

GENERAL OPERATIONS.—*Air*, admit freely, unless the temperature out of doors be low at the end of the month. *Cuttings*, as soon as sufficiently rooted to bear removal, pot them off to get established before winter. *Decayed leaves*, clear away as fast as they appear. *Insects* are now abundant, keep them under by every available means. *Moisture*, afford daily, by watering the paths where Orchids and other succulents are grown. *Plants in baskets*, dip in water every few days; those in flower may have reduced temperature. *Temperature*, see that it is not too high; also look to the heating apparatus, to have it in good order. *Top dress* and *tie up* occasionally. *Water*, reduce in quantity as summer passes over; use the sponge freely to keep foliage clean.

CULTURAL DEPARTMENT.—*Achimenes*, when done blooming, lay the pots on their sides out of doors, where they may be preserved from wet and damp, to keep the bulbs in a quiescent state. *Dendrobiums*, when their new pseudo-bulbs are perfected, reduce the supply of water, and place them in a lower temperature; the same treatment may be pursued with *Epidendrums*. *Gesnerias* and *Gloxinias* may have the same treatment as *Achimenes*. *Ixoras*, last month's directions may still be carried out if neglected then. *Justicias*, *Clerodendrons*, and other rapid-growing plants, may have a shift. *Passifloras and other Climbers*, prune-in freely, and tie up.

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QUESTIONS, ANSWERS, AND REMARKS.

FRENCH PELARGONIUMS.—During my attendance at the recent Horticultural fêtes at the Crystal Palace and elsewhere, I was much struck with the appearance of that class termed "French, or Spotted" Pelargoniums, and would feel obliged to the Editor of the *Cabinet* if he would favour me with a descriptive list of a few of the best and most attractive varieties in present cultivation.—*Amicus*.

[Ernest Duval, lilac-purple, all the petals veined and blotched with maroon. Eugene Duval (Miellez), rosy purple, with a light centre and edging; showy. James Odier, violet-rose, with a white centre. Madame Corbay, bright rosy scarlet, with white centre; very striking. Madame Heine, upper petals deep maroon, edged with white; lower, white, with a veined spot of rich maroon. Madame James Odier, rosy scarlet shading to violet; extra fine. Madame de Lamoriciere, salmon flesh colour, petals equally blotched with crimson-maroon. Monsieur Droquet, carmine, striped and shaded with maroon, white centre. Monsieur de la Galissérie, rich orange, with a distinct maroon spot in each petal. Ne plus Ultra, bright deep crimson, with very dark veins and blush centre. Perugino, large, deep rose, with a maroon spot in each petal. Pescatorei, orange-red, with a tinge of salmon, each petal equally spotted with maroon, centre white. Princess Matilda, upper petals deep black, edged with white; lower, white, with maroon spots. Roi des Pourpres, dark purple, blotched and veined with chocolate. Triomphe de la Tour, deep rose, strongly veined with crimson. Verschaffeldtii, upper petals deep chestnut-crimson; lower, rosy flesh, with crimson spots and veins. The above selection comprises the most distinct and striking of this pretty class, which, although wanting in form, are very showy, and please by the brilliancy of their colouring, and beauty of their regular spots. Few plants are more ornamental for the conservatory.—Ed.]

Tea Rose, Mrs. Bosanquet.—I have a fine dwarf budded plant of this Rose which has not bloomed since the first season it was planted, now three years ago; its bloom was then very profuse. The plant seems in excellent health, and is very vigorous, with strong shoots, which have been pruned-in regularly in the month of November. It is in good strong and rich soil, well manured each season. If you, or any of your numerous correspondents, can inform me where I have erred, or what is the cause of the failure, I shall be much obliged.—*Julia.*

[We have no doubt it has been treated too kindly; the soil is too rich, which causes it to produce wood instead of flowers. If taken up early next year, about the beginning of March, and roots pruned (shortening the largest, but not interfering with the fibres), and replanted in a poorer loam, without manure of any kind, we doubt not but a profusion of bloom will follow.—Ed.]

Pomegranates in Pots.—Will you inform me how I am to treat these plants in order to make them bloom well in pots?—*J. M. L.*

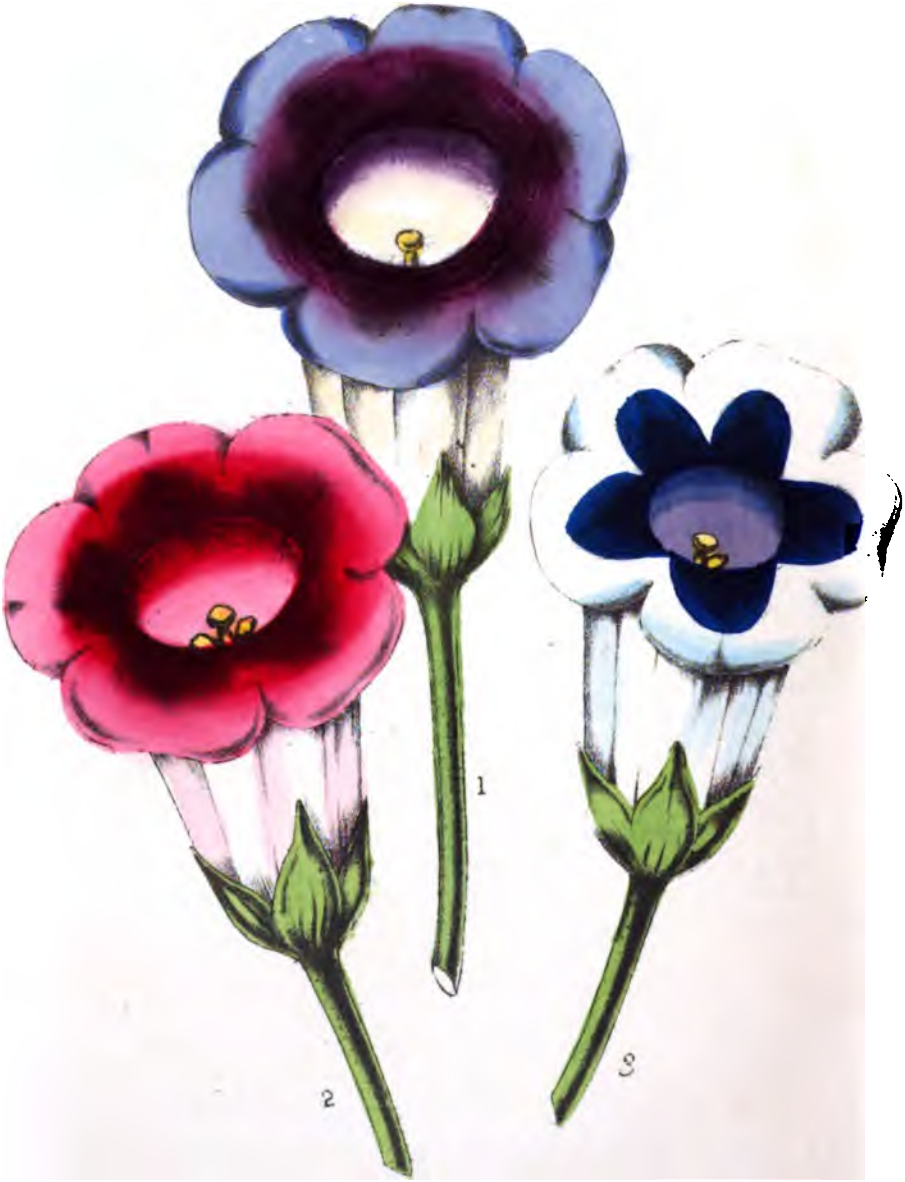
[They must not be allowed to grow too luxuriantly; for if stimulated to produce wood, no flowers can be expected. They require a dry, warm atmosphere; generally our climate will be found too damp for them to succeed well. They must have all the sun possible during summer, and especially the autumn months; allow them to rest during winter; push them forward in the greenhouse in early spring, and again expose them to the action of the sun in autumn. Do not water too liberally, and you will succeed.—Ed.]

Luminous Plants.—The phenomenon of phosphorescent dead wood is of very frequent occurrence in some parts of the humid mountainous provinces of India, and I am perfectly familiar with it. At Darjiling, in the Sikkim Himalaya, during the damp warm summer months (May to October), at elevations of 5000 to 8000 feet, it may be witnessed every night by walking a few yards in the forest—at least it was so in 1848 and 1849; and during my stay there billets of decayed wood were repeatedly sent me by residents, with inquiries as to the cause of their luminosity. It is no exaggeration to say that one does not need to remove from the fire-side to see this phenomenon, for if there is a log of partially decayed wood amongst the fire-wood, it is almost sure to glow with a pale phosphoric light, if the candles be removed and the fire low. A stack of fire-wood collected near my host's (Mr. Hodgson) cottage, at 7400 feet elevation, presented a beautiful spectacle for two months, and on passing it at night, I had always to quiet my pony, who strongly objected to it. The phenomenon invariably accompanies decay, and is common on Oak, Laurel (*Tetranthera*), Birch, and probably other timbers; it equally appears on cut wood and on stumps, but is most frequent on branches lying close to the ground in the wet forests. I have reason to believe that it spreads with great rapidity from old surfaces to fresh-cut ones. That it is a vital phenomenon, and due to the mycelium of a fungus, I do not in the least doubt, for I have observed it occasionally circumscribed by those black lines which are often seen to bound mycelia on dead wood, and to precede a more rapid decay. I have often tried, but always in vain, to coax these mycelia into developing some fungus, by placing them in damp rooms, etc. When camping in the mountains I have caused the natives to bring phosphorescent wood into my tent, for the pleasure of watching its soft undulating light, which appears to pale and glow with every motion of the atmosphere; but, except in this difference of intensity, it presents no change in appearance night after night. Alcohol, heat, and dryness soon dissipate it; electricity I never tried. It has no odour, and my dog, who had a fine sense of smell, paid no heed when it was laid under his nose. As far as my observations go, this phenomenon of light is confined to the lower orders of vegetable life, to the fungi alone, and is not dependent on irritability. I have never seen luminous flowers or roots, nor do I know of any authenticated instance, such, namely, as may not be explained by the presence of mycelium or of animal life. In the animal kingdom luminosity is confined, I believe, to the Invertebrata, and is especially common amongst the Radiata and Mollusca; it is also frequent in the Entomostracous Crustacea, and in various genera of most orders of insects. In all these, even in the Sertulariæ, I have invariably observed the light to be increased by irritation, in which respect the luminosity of animal life differs from that of the vegetable.—*J. D. H.* (*Gard. Chron.*)

CISSUS DISCOLOR.—I succeed in growing this well in equal parts of light turfy loam and peat, with a little leaf-soil and coarse gritty sand, to keep the compost porous. It must be well drained with large crocks, covering them over with rough turfy peat, as drainage made with small crocks soon becomes choked up. It is worse than useless for any plant after it has been removed from a three-inch pot. The Cissus requires a high temperature, and must therefore be placed in the hottest part of the stove or orchid-house, and shading must be particularly attended to on bright days. This latter is essentially requisite, in order to produce that intensity of colour which makes it so charming. Most plants require strong solar light to bring out their colours to perfection; but the one under consideration is an exception, which is readily accounted for by tracing the plant to its natural habitat, where the sun is scarcely able to dart his fiery rays through the dense mass of luxuriant vegetation by which it is surrounded, but whose burning heat, acting on the saturated moss-clad soil, causes a thick vapour to exhale, which is highly congenial to vegetable life, but far otherwise to the botanical rambler who may prolong his stay among these unhealthy shades. It is admirably adapted for trailing up a pillar, or on the end walls or divisions of the stove. If trained up the rafters the young shoots must be allowed to hang down, or the effect would be partially destroyed by the surface of the leaves turning to the roof instead of facing the observer's eye. It is also equally suitable for pot culture, and in this case any trellis may be used that taste may suggest; probably one of upright pillar-like form will be found to be as suitable for displaying its varied tints as any that may be devised. As autumn approaches, the supply of water must be gradually diminished, and the plant kept rather dry from November till February, allowing it only just sufficient water to keep the roots healthy. This partial rest will enable it to start into growth with renewed vigour in the following spring, when the former treatment may be resumed.—*S. P.*

CLIANTHUS PUNICEUS.—This is too often treated as if it were very tender; but, in common with most plants of New Zealand, it may be made to bear our climate most readily, if grown against a south wall, with the slight protection of a mat in winter. When grown side by side with the *Wistaria Sinensis*, they make really a splendid contrast, as I have seen in the garden of a friend of mine. Nothing can look better than these two plants for a wall.—*B. F T., Truro.*

AUTUMNAL CROCUSES.—These bulbs grow freely in a rather dry, deep loamy soil, and may be regarded as hardy in our climate, if they are preserved from the injurious influence of damp in the soil; as their vegetative development takes place during our most inclement weather, it may be proper to give them a sheltered situation, such as the foot of a wall or building. Until they become much more abundant, however, they can hardly have much influence on out-door gardening. They are invaluable, nevertheless, as pot plants for the decoration of greenhouses and sitting rooms during the later autumnal months, when few flowers remain. In pot-culture they should have good-sized well-drained pots of sandy loam and leaf-mould, and should be grown in a cold frame, whence they may be removed while in blossom to the situations they are required to decorate, and after flowering should be returned to the frame, and slightly protected during severe weather. They are increased by the offsets from the old corms; and also in some cases by seeds, which may furnish the means of increasing the variety of these autumnal ornaments, a point to which greater attention deserves to be paid. Will no one take this interesting tribe in hand?—*Quoque.*



GLOXINIAS.

The Floricultural Cabinet.

SEPTEMBER, 1857.

ILLUSTRATIONS.

GLOXINIA SPECIOSA, var. HYBRIDA ERECTA.

No. 1, Madame Picouline. No. 2, Fulgens.
No. 3, Helen of Orleans.

THE erect-flowering Gloxinias are now universal favourites, and since the original or type of the class, *G. Fyfiana*, was raised, about twelve years ago, a marked improvement has taken place, which is still going on,—an instance among many others of the result of careful hybridization. It is a remarkable circumstance that the accidental variation from the normal structure or habit of the Gloxinia should have been perpetuated in the erect-flowered varieties, all having their rise from *Fyfiana*. As ornamental plants for the stove or greenhouse, and adapted alike for pot or basket culture, Gloxinias possess merits of a high order, not only arising from their beautiful flowers and foliage, combined with dwarf, compact habit, but from the ease with which they may be cultivated or propagated, and the length of time during which a succession may be kept in bloom. Any one possessed of a warm close pit may grow them very successfully in a mixture of loam, peat, and sand, the peat being broken up into lumps. Free drainage is essential, as they require an abundance of water when in a growing state. When the leaves begin to decay, in the autumn, the supply of water must be gradually diminished, and when they have died off, the pots containing the tubers may be set away on any dry shelf where they are secure from frost. In spring they may be repotted, and started in succession, to keep up a supply of bloom throughout the summer. If started in autumn they may be had in flower during winter and spring.

The three handsome varieties figured this month were raised by M. Jæger, gardener to the Grand Duke of Saxe Weimar, at Eisenach, a gentleman who has been very successful in raising many novelties, and who has devoted a large share of attention to this favourite flower.

In addition to the three kinds figured in our illustration the annexed descriptive list of a dozen choice erect-flowered varieties comprises some of the best at present in cultivation.

Alba Auriculata.—Pure white, with carmine-rose-coloured throat.

Dionysius.—Centre of the tube white, the upper part surrounded with pale rose, mottled with carmine spots, and deepening as the colour extends half-way up the segments of the corolla.

Donna Colonna.—Centre of the tube pure white, surrounded at the mouth with a circle of rosy violet, extending half-way up the segments of the corolla.

Eloisa.—Centre of the tube pale blush, passing into purple near the mouth, segments of the corolla separated by a narrow sinus or opening, blotched with deep crimson, nearly covering the entire petal.

Gentiana.—Tube and segments fine purple or plum colour.

Imperatrice Eugenie.—White tube and segments, with bright purple-crimson throat.

Ipomœa.—Tube pure white, segments violet-blue.

Marie Paulowna.—Tube and throat white, segments porcelain-blue.

Princess Royal.—Corolla large, tube white, or pale sulphur, segments delicate lilac-blue, with a white spot at the base of each, surrounded with a ring of darker lilac.

Roi des Belges.—Throat white, shading into pale crimson and rich plum-purple in the segments, which are blotched about half-way up; a very distinct, neat flower.

Tarragona.—Throat pale, carmine, deepening half-way up the segments.

Waterwitch.—Tube white, with a zone of delicate rose surrounding the mouth.

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A DESCRIPTIVE LIST OF ONE HUNDRED OF THE BEST ROSES.

BY ONE WHO HAS ATTENDED THE EXHIBITIONS.

AS the time for planting Roses is drawing near, it may prove serviceable to many of the amateur readers of the *Cabinet* to give a descriptive list of some of the best Roses in cultivation, as an assistance to intending purchasers.

In making out the following list, I have been guided by my notes, taken during the course of my attendance at the late exhibitions, corrected by one of the most extensive growers of this favourite flower, and, to make them more select, I have confined the list to one hundred varieties; as such, it may perhaps prove useful, and is at your service.

MOSS.

The great beauty of this class fully repays the extra care and attention the high cultivation which they require demands. Luxembourg and Princesse Adelaide are robust growers, and ought not to be over-pruned, but thinned out, and their shoots tied down to induce a more abundant bloom; the dwarfer ones may be pruned closer. If desired, they may be grown as pillar Roses. *Baronne de Wassener*, rosy red, very double, large, and flowers in clusters. *De Metz*, large and double, fine bright rose. *Lainii*, rosy crimson, with a tinge of purple, large, fine, and double; a vigorous grower. *Luxembourg*, crimson-red, tinged with purple, large and double; very vigorous. *Princesse Adelaide*, light rose, in clusters; a splendid flower. *Unique de Provence*, superb white, blooming in large clusters; very double.

PROVENCE, OR CABBAGE.

This class contains some varieties that are remarkable for their fine globular flowers and delicious scent. The soil in which they are grown can scarcely be too rich, and they should be pruned in closely *Adrienne de Cardoville*, deep rose, large and full; a distinct flower *Cristata*, clear rose, with lighter edges; the buds prettily crested *Reine de Provence*, pinky lilac, large and double; a strong grower.

GALLICA.

These Roses form very compact heads; their flowers are valued for their bright, high colours and extra form, and are all first-rate exhibition flowers; moderate pruning is best for them. *Boule de Nanteuil*, purplish crimson, the centre sometimes glowing crimson-red; large, distinct, and good. *Duchess of Buccleuch*, deep rose, with blush edges, large and very double, fine. *Latour d'Auvergne*, rich carmine, sometimes inclining to purple, with a brilliant centre; large and fine. *Œillet parfait*, ground pure white, broadly striped with rose and crimson, very double; a superb flower. *Shakespeare* (or *Kean*), velvety crimson, shaded with purple, fiery centre; large and very full. *William Tell*, rosy blush, with paler edges; a superb, large, and full Rose, of vigorous growth.

HYBRID PROVENCE.

This section being mostly moderate growers, require pretty close pruning. They are of delicate colouring, closely allied to the Provence and Gallica Roses. *Blanchefleur*, white, suffused with delicate rose; an abundant bloomer, large, and perfect form. *Comtesse de Ségur*, light flesh, delicate, full, and fine.

HYBRID CHINA.

In pruning, these Roses should be well thinned, and the flowering branches shortened but little. The strong growers make fine pillar or climbing plants. Most of these Roses are almost perfection itself in form and size. *Blairii*, No 2, rosy blush; very large and fine. *Brennus* (or *Brutus*), vivid carmine, superb, large and full; a vigorous grower. *General Jacqueminot*, purple-crimson; fine form, and very large. *Madame Plantier*, white, blooming in large clusters. *Magna Rosea*, fine light pink, very large.

HYBRID BOURBON.

The foregoing remarks on pruning Hybrid China Roses are equally applicable to this section. *Charles Duval*, rosy pink, excellent form and size. *Chénedolé*, brilliant crimson, extra large and double; a superb flower. *Comtesse Mole*, delicate rosy pink; fine. *Coupe d'Hébé*, fleshy pink; a noble flower. *Las Cases*, bright rose; an immense flower. *Paul Perras*, beautiful shaded Rose; large, full, and fine. *Paul Ricaut*, bright rosy crimson, globular, and full; a splendid flower.

ALBA.

This comprises a limited but beautiful section that require but ordinary cultivation. The dwarf growers may be pruned rather closely, and the more vigorous kinds not so much. *Félicité Parmentier*, rosy blush, with lighter edges; very double. *Madame le Gras*, pure white, centre tinged with cream colour; a beautiful large flower. *Sophie de Marcilly*, delicate blush, with rosy centre; fine when in bud.

DAMASK.

The damask section will bear a rather free pruning, are perfectly hardy, and form a very attractive class. *Madame Hardy*, snowy white; fine. *Madame Stoltz*, lemon-white; compact and superb. *Semiramis*, rose, with a creamy buff centre; very large and double.

HYBRID PERPETUAL.

Rich soil and rather close pruning are necessary. They are excellent pot Roses, and the strong growers make fine plants for pillars. The long period during which they continue to bloom, from early in June to the beginning of November, is alone a great recommendation, without respect to their brilliant colours. *Alexandrine Bachmetoff*, bright rosy carmine; large and full. *Auguste Mie*, light rose; a beautiful, large, globular flower. *Augustine Mouchelet*, rosy crimson, with a deeper centre; blooms in clusters, and fine size. *Bacchus*,, crimson-scarlet, free; an improvement on *Géant des Batailles*. *Baronne Hallez*, crimson-red; large and fine. *Baronne Prevost*, rosy blush, large and extra full; a very fine Rose. *Caroline de Sansal*, clear blush, beautifully cupped; large and fine. *Colonel de Rougemont*, deep rosy pink. *Comte de Nanteuil*, deep rose, with shaded edges; fine form. *Duchesse d'Orleans*, lilac blush; very large. *Duchess of Sutherland*, light glossy rose; a magnificent flower. *Empereur Napoleon*, deep crimson, shaded. *Gloire de Rosamene*, bright carmine; large and showy, semi-double. *Géant des Batailles*, scarlet-crimson; double, and very fine. *General Jacqueminot*, scarlet-crimson; very large. *Impératrice des Français*, flesh colour, whitish centre; a free late-blooming variety. *Lion des Combats*, reddish violet, sometimes shaded with scarlet; splendid. *Lord Raglan*, deep velvety crimson, edges rather tinged with violet; new and fine. *Madame Désire Giraud*, blush white, striped with carmine; large and distinct. *Madame Domage*, light rosy crimson; fine. *Madame Laffay*, crimson; beautiful. *Madame de Manoel*, light shaded pink. *Madame Masson*, superb shaded crimson. *Madame Place*, rose; fine shape. *Madame Vidot*, blush, tinged with salmon; a finely cupped flower. *Mrs. Rivers*, light flesh; good habit and form. *Pauline Lansezeur*, bright crimson, changing to violet. *Prince Leon*, brilliant crimson; very double, new and fine. *Queen*, bright rose; large. *Queen Victoria*, white, shaded with pale pink; large and full. *Reine des Fleurs*, rosy pink; a perfect flower. *Souvenir de Leveson Gower*, crimson-red, changing to ruby; very fine. *Triomphe de Paris*, rich deep crimson; one of the finest of the section. *William Griffiths*, lilac-rose, compact. *William Jesse*, crimson, tinged with lilac; very fine.

PERPETUAL MOSS.

Similar treatment to the foregoing suits these autumnal moss Roses also. *Alfred de Dalmas*, rose, with lighter edges; blooms in clusters. *Madame Edouard Ory*, light rosy carmine; full.

BOURBON.

These are a very free and hardy class, generally blooming in autumn. The vigorous-growing kinds make beautiful pillar or climbing Roses. *Acidale*, blush white; large. *Aurore de Guide*, deep crimson; superb. *Comte de Robinski*, deep scarlet-crimson; large, full, and a beautiful flower. *La Quintine*, bright crimson, changing to velvety maroon; new and fine. *Madame Nerard*, silvery pink, with a deeper centre; superb. *Paul Joseph*, deep velvety crimson; large and fine. *Queen*, delicate creamy salmon; free bloomer. *Souvenir de la Malmaison*, clear flesh colour; a magnificent flower.

CHINA.

Adapted for planting in beds or borders, as well as for small pots. *Eugenie Beauharnois*, lilac-lake colour; a beautiful flower. *Madame Bureau*, fine pure white. *Miellez*, white, with a lemon tinge; excellent for pots. *Mrs. Bosanquet*, delicate pale flesh; flowers in clusters, large and beautiful.

TEA.

Tea Roses are rather tender, requiring a protection of fern or other branches in winter, and free drainage; they are unequalled for forcing. *Adam*, blush pink, with salmon centre; very large, and sweet scented. *Bougère*, bronzy rose; very large. *Comte de Paris*, creamy rose; large and perfect. *Devoniensis*, lemon-white; very large and fine. *Elise Sauvage*, pale yellow or straw colour, with buff centre; very fine. *Gloire de Dijon*, buff-yellow, shaded with salmon, very large; one of the finest Roses. *Madame Willermorz*, very light nankeen, with salmon centre. *Narcisse*, pale yellow; beautiful. *Niphetos*, lemon-white, sometimes pure white; very large and beautiful. *Safrano*, apricot colour when in bud, changing to nankeen; a splendid flower. *Souvenir d'un Ami*, shaded rosy salmon. *Vicomtesse de Cazes*, yellow, with bronzy centre; large and double.

NOISETTE.

Noisettes bloom in summer and autumn, many bearing immense clusters. The true Noisettes are perfectly hardy. The strong-growing kinds are also well adapted for climbers. *Jaune Desprez*, bronzy buff; large. *Lamarque*, lemon-yellow; large and superb. *Miss Glegg*, pure white, with a tinge of blush in the centre; dwarf habit, good. *Solfaterre*, large, bright sulphur-yellow.

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PLANTS SUITABLE FOR SUSPENDING IN BASKETS IN THE GREENHOUSE AND CONSERVATORY.

BY A NOBLEMAN'S FLOWER GARDENER.

ONE of the chief attractions of a greenhouse or conservatory consists in viewing a number of handsome trailing plants, growing in baskets and other neat-looking receptacles, suspended from the roof and hanging gracefully down. Indeed, there are many plants which cannot be seen to so great advantage in any other situation, and in some places where climbers cannot conveniently be trained, a few pretty pots or baskets, judiciously introduced, will lend a charm to the house which it would otherwise be destitute of. In the cooler temperature of the greenhouse or conservatory we may avail ourselves of a great range of subjects, far more numerous indeed than in the stove; but while describing suitable plants, I have in the following list confined myself to such as are easily managed and produce the best effect.

Aotus gracillimus is an excellent subject, bearing long branches, drooping down on all sides, and covered, when in flower, with elegant little yellow and orange pea-shaped blossoms. It may be increased and grown like Heaths in sandy loam and peat. *Calampelis scaber* (formerly *Eccremocarpus)* grows well and blossoms freely for a long time; bright orange. *Campanula fragilis*, suitable for small baskets; blossoms clear blue; branches long and slender; grows well in leaf-mould, peat, and loam, and readily increases by division. *Cereus ;* of this genus there are several species suitable for basket culture, and in such a position they not only do well, but are very handsome when in flower; the only thing necessary to be remarked in their treatment is that they should be kept almost without moisture throughout the winter. *Cobœa scandens ;* few plants are more showy than this, when bearing its purple Foxglove-like flowers, and we generally find it occupying such situations as we are now treating of, however few other plants there may be. It requires a rich soil, and should have a rather large-sized basket, with plenty of room to droop. Seed sown in a hotbed in March affords an easy method of obtaining stock for the purpose of filling baskets; prick out the young plants while in the seed-leaf, and keep repotting until large enough, but take care to stop them in frequently, to obtain plenty of lateral branches. *Dillwynia sessiliflora*, a New Holland plant, bearing very numerous drooping branches and small orange flowers; suitable for small-sized baskets, where it is a pretty object when in blossom; flourishes in peat, mixed with a little loam and silver sand. *Disandra prostrata*, a plant of a naturally drooping habit, bearing numerous, pretty, yellow star-like flowers. It is easily propagated by division of the root, and grows in a rather rich soil. *Epiphyllums;* like the *Cereuses*, there are many plants of this genus of the Cactus tribe that may be made to do well in such situations, and have a gorgeous appearance when in bloom. Their treatment has nothing peculiar, except the withholding of water in winter, and a liberal supply in summer, with a rather rich soil, rendered open by a mixture of broken crocks and some lime rubbish, to ensure a free drainage. Some of the best are, *E. Ackermanni*, flowers scarlet; *E. aurantiacum*, orange-red; *E. Bridgesii*, scarlet, shaded with bright purple, a very fine species; *E. Jenkinsonii*, bright scarlet, leaves large; *E. splendens*, light scarlet, very abundant bloomer; *E. Russellianum*, light purple; *E. truncatum*, pink; and *E. truncatum*, var. *violaceum*, a splendid species, bearing rather large, rich, violet-purple flowers. *Fuchsias;* there are many of pendent habit that may be grown in baskets, and few things look better, as any one who has seen the splendid plants suspended at the Crystal Palace and elsewhere can bear witness. *Geranium;* the Ivy-leafed variety is another plant well adapted for this purpose, and when mixed with other things, the rich green of its leaves has a happy effect, as well as its pale pink flowers. *Hardenbergia monophylla* is a rather straggling plant, but with judicious treatment looks well, and bears its pretty spikes of blue flowers in abundance. Peat, loam, and sand suit it well. *Heliotropium;* several varieties are excellent for small-sized baskets. *Hibbertia grossulariæfolia*, with leaves resembling those of the Gooseberry, coloured on the under side, and bright yellow flowers; makes a capital plant for suspending, as it not only has a good effect, but continues in bloom for a long time, which is no small recommendation. Loam and sandy peat grow it well, and cuttings strike freely under a bell-glass in sand. *Kennedya;* of this genus there are several plants that may be made use of, all beautiful, bearing neat showy flowers, of varying tints of red and orange. Sandy-peat soil is most suitable, and stock may be increased either by seed or cuttings. *Lantana miniata, crocea, Sellowii*, and several others, are nice things for baskets, and look well when mixed with Lobelias and Heliotropes. *Lobelia erinus* and such like procumbent varieties are elegant, either by themselves, or as a mixture with other plants. *Lophospermum scandens* is another of the best subjects, used extensively for furnishing the baskets in the Crystal Palace. Propagated by seed sown in a hotbed in March; pot off when large enough, and continue shifting until required for the baskets; cuttings taken off at midsummer will strike in sandy loam, in a frame shaded from the sun. Old plants generally become naked near the base of the stem; it is best, therefore, to renew them as soon as they become at all unsightly. *Lotus Jacobæus;* a pretty little plant for small baskets or mixtures, contrasting well by its rich velvety brown flowers with the other plants. The soil should be rather rich, and light; seeds and cuttings afford a ready means of increase. *Lysimachia nummularia,* although a hardy, native plant, answers basket purposes, and should be grown out of doors in pots, and introduced into the house while in flower; it is very pretty, bearing a profusion of pendent stems and yellow star-like blossoms. *Lycopodium;* several of these ornamental "mosses," all of the easiest culture, are valuable as affording a green undergrowth to Fuchsias and plants with rather naked stems; others hang down a considerable distance from the pot, and their light, airy appearance has a charming effect. They serve also to keep the soil cool and moist, when planted with other things. *Maurandyas;* several species answer well, and may be treated like Lophospermums. *Mesembryanthemums;* there are a number of species well adapted for basket culture, requiring similar treatment to the Cactus tribe. The following are among the best:—*M. aurantium,* orange; *M. blandum,* white; *M. coccineum,* scarlet; *M. decumbens,* pale red; *M. inclaudens,* purplish pink; *M. micans,* scarlet; *M. speciosum,* scarlet; and *M. violaceum,* violet. *Mimulus moschatus,* when grown in baskets, is a charming plant. *Nemophila insignis* and others are excellent subjects. *Nierembergia calycina,* flowers freely and early in the season; it requires rich soil and liberal water in summer, but should be kept rather dry in winter. *Petunias* look well, if not allowed to become too long. *Rose Vicomtesse de Cazes* does well, and makes a very desirable plant, if previously trained downwards in pots. *Saxifraga sarmentosa,* a very common but pretty plant, frequently seen in cottage windows. Its flowers are pink, and foliage large, marked with white, and purplish underneath. Readily increased by taking off the young plants that are produced at the joints of the stems. *Sollya heterophylla* does well with a little management, and is really a charming thing; heath-mould, or peat and loam, is proper compost for it, and it may be increased by seed; cuttings are rather difficult to strike without bottom heat. The pretty blue bell-shaped blossoms are very elegant. *Torenia Asiatica* is a beautiful plant for this purpose, more on account of its handsome purple and white flowers, as its habit is rather loose. It should be transferred to the stove when it has done flowering in the greenhouse. *Tropæolums;* many of this fine genus are handsome basket plants, especially *Lobbianus,* and the numerous hybrid varieties raised from it; they require, however, annual renewal. *Verbenas,* such as *venosa* and others of that class, look well.

In large conservatories, where the plants have abundant room to hang down, and plenty of light, some of the more rampant-growing plants in considerable-sized baskets look remarkably well, as *Plumbago Capensis*, *Passifloras*, and *Clematises*.

I must now conclude this rather extended list, although there are a number of very good plants that may be made use of for basket culture. Much effect is gained by a judicious mixture and arrangement of the plants as regards *habit and colour;* small baskets, containing the more compact and small-flowered plants, alternating with larger ones having a mixture, look well, and relieve the heavy appearance which they might otherwise have. Those who have baskets to fill ought by all means to pay a visit to the Crystal Palace, and see "how they manage these things there."

REMARKS ON POPULAR FLOWERS AND OLD GARDEN FAVOURITES.

BY MR. EDWARD SHEPPARD.

No. I.—The Rosemary.

"There's Rosemary for you, that's for remembrance; I pray you, love, remember."—*Hamlet.*

IF we consult the pages of those old worthies of the spade, Gerarde and Parkinson, as well as the writings of other old "cullers of simples" and gardening "apothecaries" of two hundred years back and farther, we shall be told that "Rosemarie" "comforteth the brayne and strengtheneth the hearte of man;" moreover, from these considerations we shall learn that it "helpeth the vnderstanding and memorie." I do not know whether this supposed influence on the faculties of the mind led to its being held an emblem of fidelity in love, and of remembrance, but such was the case, and to this virtue of the herb Shakespeare apparently refers in the lines spoken by Ophelia, quoted at the head of this article.

Drayton, in his "Pastorals," has preserved a similar reference to this emblem, where he says—

"He from his lass him lavender hath sent,
Showing her love, and doth requital crave;
Him Rosemary his sweetheart, whose intent
Is that he her in remembrance have:"

Beaumont and Fletcher, and, if I mistake not, Wharton and Spenser, have similar allusions.

We find it was customary with our ancestors to wear sprigs of Rosemary at the joyful festivities of a bridal, and one says—

"Since wedding will come after wooing,
Get me some Rosemary, and let us be going."

Our forefathers would appear to have been somewhat fantastic in their choice of emblems, for we find Rosemary also a representative of sadness, and although worn at weddings, it was also an attendant at the funeral; sprigs of it were thrown into the grave, and plants placed in the mournful churchyard. The poet Gay alludes to this in his "Shepherd's Week," and from other sources it may be gathered that it was a common practice in his time to make this use of it. He says—

> "To show their love, the neighbours far and near
> Followed with wistful looks the damsel's bier;
> Sprigg'd Rosemary the lads and lasses bore,
> While dismally the parson walked before.
> Upon her grave the Rosemary they threw,
> The daisy, butter-cup, and endive blue."

In some of our country churchyards we may even now find this plant growing among the tombs.

In former times Rosemary was held in much greater estimation than it is at present, and it was a principal plant in the gardens of the great during the time of Elizabeth and James I. Shenstone says—

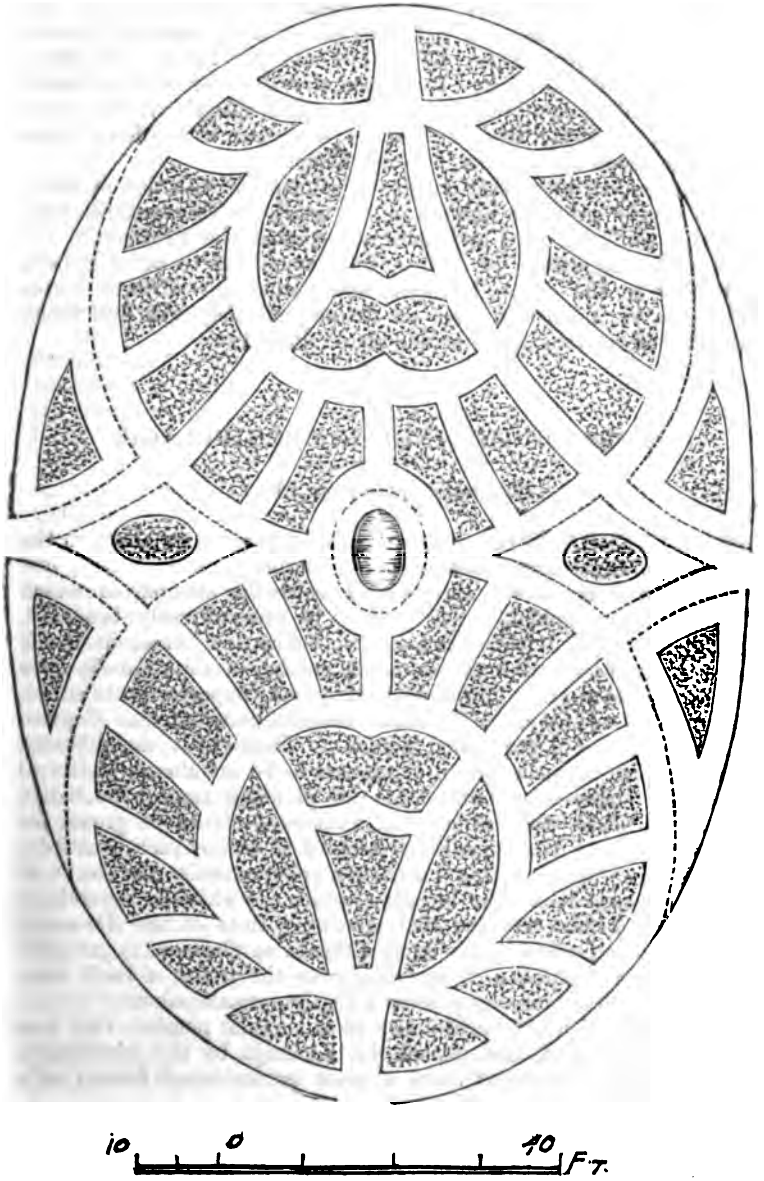
> "Here trim Rosmarin, that whilom crowned
> The daintiest garden of the proudest peer,
> Ere driven from its envied site, it found
> A sacred shelter for its branches here;
> Oh wassel days! Oh customs meet and well!
> Ere this was banished from its lofty sphere."

The wise and amiable Evelyn tells us frequently in his "Diary" of the beauty of his hedges of Rosemary, which at last were almost killed through excessive frost, as appears in his letter to the Royal Society, published in an early volume of their Transactions, wherein he details the damage done to his plants by the severe weather. This pretty, modest shrub was famous in the concoction of a liquor known as "Hungary-water," which the good dames who managed such things in the olden time (instead of, as now, killing time by knitting, netting, and crochet) extracted by spirits, and preserved as one of the rarest cordials.

Rosemary grows wild all over the South of Europe, and around the shores of the Mediterranean, being met with in Algeria and the Levant. In our climate it is not often injured, but bears our winters well in the border; in pots it is better to afford it the protection of a roof over its head in that inclement season. Slips or cuttings will root if taken off early in spring, but perhaps the best plan is to layer them, and after they have rooted sever the connection of the young plants with the parent gradually, cutting them half-way through first, by which means they are not so likely to receive a check. I have propagated a hundred nice little plants in a single season by this plan.

DESIGN FOR A ROSARIUM, OR HEATH GARDEN.

BY T. RUTGER, ESQ.



On my sending the accompanying design to the late Mr. Loudon, for his *Arboretum et Fruticetum,* he introduced it for an "Ericacetum," or Heath Garden; it may be seen at page 1184 in the second volume of that work, with his remarks (at page 1186). As it is equally applicable for a flower garden or a rosarium, I send it you for insertion in the *Cabinet,* should you think it worth a place in one of its pages. A proper situation for such a flower garden would be on a lawn, surrounded with a shrubbery, having in it recesses for garden seats, or arbours; and vases with other devices might be placed on the grass for embellishment.

Mr. Loudon, with other designs in connection with that of mine, enters largely into the subject in his article on Ericacetums, with regard to soil, site, etc., and does not confine the Ericacetum exclusively to the growth of *Ericas,* but extends it to other genera belonging to the order Ericaceæ, and should any of your correspondents be inclined to form an Ericacetum, they will find much valuable information in the article above alluded to.

FLORA OF THE INDIAN ARCHIPELAGO.

(*Continued from page* 218.)

HERBACEOUS plants are found in great numbers on the exposed and damp roads of Borneo, and in mossy, low places several species of *Anæctochilus* abound, of which the golden-veined variety is pre-eminently beautiful. Rajah Brooke has a garden before his house, in which there is a profusion of *Jasminum* and a number of *Camellia Japonica* shrubs, and he appears to avail himself of every opportunity to enrich his grounds with some of Nature's choicest productions. Captain Mundy also has a very good garden. Throughout the different islands of this extensive group, it appears to be an almost universal custom to cultivate certain plants for planting among the native tombs. In Java, the Samboja, or *Plumieria obtusa,* is grown for this purpose, and it is a plant well adapted to occupy such situations, its dark green foliage giving it a solemn appearance, and it has at all times an ancient look; the blossoms, which are white on the outside and yellow within, are the real mourning tints of the Javanese. Another flower, called by the natives Sulasi, an *Ocimum,* is gathered annually for the purpose of strewing over the graves of their venerated dead; these blossoms possess a highly aromatic odour.

Sumatra is rich in beautiful as well as singular plants. One tree found in this island, and named the Kanango by the inhabitants, grows to a large size, and bears a great profusion of flowers of a greenish yellow colour, which at a little distance can scarcely be distinguished from the leaves; they possess a pleasant fragrance, diffusing itself for a considerable distance around, especially in the evening, when the flowers open.

The Boongorio, Pandan, and Melattee are all handsome shrubs and fine flowers; the latter is frequently found planted by the native houses. Ladies of this island make use of the flowers of the Tanjong tree for head-dresses; they have a delicious scent, and are star-shaped, yellowish, or cream colour, borne in vast numbers among the dark rich foliage of the tree. There is a remarkable flower found only in this island, named the Sandool Mallam, which opens only after the sun is gone down, and another, the Jeering Landa, a pea-formed flower, whose seeds rattle loudly in the capsules. The Tab-kong-broo, or Monkey-cup flower, is rather scarce, indeed we have never seen it; but, from the description of the natives, we are led to consider it a species of Pitcher-plant. Many other remarkable plants are indigenous to the island of Sumatra, which we cannot allow ourselves space to particularise.

In one of the Din-ding islands (which though not properly forming any portion of the Indian Archipelago, yet are in the vicinity) Mr. Finlayson discovered an Epidendrum of giant growth; its flowering stems, six feet long, frequently bearing about a hundred blossoms, each between two to three inches across, and four inches long, of a rich yellow colour, speckled with brown, and giving off a very perceptible and rather pleasing odour. The island of Celebes luxuriates in an abundance of the floral creation. The hills are covered with flowering shrubs, while the valleys bloom with the most delicate creepers, and its broad, soft, meadow lands are lavishly ornamented with handsome plants; its forests are clothed with lovely parasites, orchids, and other orders of plants, and the rivers and lakes, which are numerous, are studded with Water Lilies and other gorgeous aquatics. Amidst the mountain ranges, where, secure in the repose of numerous little vales, the processes of agriculture are carried on, gardens are found decorated with trees and shrubs, hung with fragrant and beautiful blossoms.

In the recesses of those vast forests, which cover so extensive a portion of the islands of these seas, we occasionally pass under avenues of trees often rising to the height of a hundred feet before throwing out a single branch, adorned with every variety of parasite and creeper, which, uniting and clinging together, form garlands and vast festoons of various colours, which depend in beautiful wildness from the branches, or sway to and fro with the wind. The rocks, too, are not destitute of their plants—here beautiful Ferns, Lycopods, and Mosses "of all hues" blend into one another, and the green sward revels in an almost ceaseless change of pretty blossoms.

Balambangan, the island on which Mr. Dalrymple unsuccessfully endeavoured to found a colony, is a lovely spot, producing large and fine timber trees; one, with leaves like the bay tree, has flowers of great beauty, and highly odoriferous; various species of *Nepenthes*, or Pitcher-plants, are found in the morasses of the interior. The

Philippine Islands produce an abundance of ornamental plants, many of them highly poisonous however. Orchids are very plentiful here.

From this brief sketch of the flowers and ornamental trees of the Indian islands it will be perceived that no other part of the world produces a greater variety or abundance, all and each beautiful in their turn. Nor are they confined to the ornamental grounds and gardens in the neighbourhood of towns and villages, although there they are numerous, but the wilds of the forests are adorned with a vast variety of the floral creation. The lonely Dyak of the woods can feast his eye and adorn his person with blossoms that many an English amateur would give, to him, a fortune for; and in localities where perhaps no human foot has trod, save that of the savage, the tall trees are bound in the embrace of giant creepers, laden with the weight of magnificent flowers of the most brilliant and the richest colours. As a field for the enterprise of the botanist, there is perhaps no better in the world. Borneo, Celebes, Sooloo, and numerous other islands, not to mention the large tract of land known as New Guinea, are comparatively unexplored, and will afford a rich harvest to be gathered in by the hands of future travellers and botanists; judging from the splendid additions that have already been made to our collections, we may be assured their labour could be bestowed in no more promising region of the habitable globe.

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ON THE CULTURE OF PENTAS CARNEA.

BY MR. EDWARD TILLEY, NORTHFLEET.

IN looking over a late number of the *Cabinet*, I have observed an article from the pen of a correspondent on "Neglected Plants," and it occurred to me that the subject of the present communication might fairly be included in that section, for we seldom see it in such general cultivation, or so well grown, as its merits truly entitle it to. When well grown, it is a very showy plant, and may be made to bloom in great abundance; so much so indeed, that it will excite the admiration of every one who can appreciate a fine flower. To what cause, then, are we to attribute this neglect? I believe it arises from nothing more than the fact that its cultivation is not even yet properly understood by the great majority of gardeners, and with this view, being myself a great admirer as well as a successful cultivator of this plant, I have drawn up a few brief remarks on the treatment I am in the habit of pursuing with it, and in the hope that they may prove of service to some of your numerous readers.

Commencing with a young plant, struck the previous summer, early in March I proceed to shift it into a pot considerably larger, using a large proportion of turfy loam, with a little fibrous peat, leaf-mould, and silver sand, the quantity of each soil being immaterial, within certain limits. In order to have free drainage, which is a very necessary requisite to the health and vigour of the plant, and one of the chief things overlooked by those who grow it, I fill up the pot about one-third of its depth with broken crocks and lumps of charcoal; when potted I give the plant a good watering, and plunge it in a moderate bottom heat in a pit with a somewhat dry atmosphere; if there be no convenience for bottom heat, the plant will progress well even without it, if the air of the house be dry rather than moist. The thermometer should range from about seventy by day, to ten degrees below that point by night. A free circulation of air, when circumstances allow, is another necessary requisite, and this more particularly if there be much moisture, of which this pretty plant is very impatient, rendering it also liable to disease.

When the Pentas has made a little fresh growth, and the roots are extending, I cut in the branches to within a couple of inches of the stem, and as soon as the roots appear at the sides of the ball, I give it another shift, adding a little decomposed manure to the before-named compost, and stop-in the branches again. After this I peg down the advancing lower shoots, and tie out the upper ones, so as to form a handsome specimen, and by midsummer, or the middle of July, it will have formed a nice-sized bush. I use water well aired, and after every second watering give diluted liquid manure, each time enough to soak through the entire ball. Syringing well every morning when the weather is hot is beneficial. If plants are to be kept through the winter, avoid damp, which appears to be its greatest enemy, and maintain a temperature of about fifty degrees throughout that season.

The treatment here laid down will not fail to show its propriety by fine specimens, and will be found to result in a plant well worthy of a place in wherever it can be grown. Thanking you, Mr. Editor, for permitting my plea to be heard for what appears likely at least to become, if it be not so already, a "neglected plant," I will for the present take my leave.

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ON GROWING THE FUCHSIA FOR EXHIBITION.

BY ALPHA.

AS regards striking the plants from the cuttings, we must be guided by the season of the exhibition; if in June, they are properly struck in September, but if designed for a September show, the most suitable time would be the month of March. The best cuttings are made by young shoots taken from near the base of the stem, which should be placed in a moderate heat, and, until rooted, require the protection of shade from the direct rays of the sun, and to have the soil kept damp, but not over-moist. When upon examination it is found that they have made a few rootlets, pot them off in equal proportions of rich fibrous loam chopped up, well-decomposed stable manure, and peat mixed with a little silver sand, using thumb-pots; the loam and peat should be chopped into small lumps, and never sifted, as it is rendered too close by that means. In the course of the following month, October, they may be potted off and placed in a pit where they will have a gentle heat, and in three weeks or a month more remove them to a warm greenhouse, placing them on a shelf near the glass. In January they may be shifted into a larger size, and should have an increase of temperature. Here they will grow rapidly.

When bushy plants are desired, it is best to encourage all the branches, and stop them into the second eye (except the leading shoot) until the proper height is attained. To form tall plants or standards, such as are now frequently exhibited, and look very handsome with their drooping branches reaching down nearly to the pot, the plan is to remove all the buds on the main stem to within four eyes of the top; when as tall as required the leader is cut in, and as the four eyes push on, stop them also at the second joints to make a handsome-branched head, although they will not have attained a fully developed appearance until the course of the second year. On coming into bloom, they may have a little weak manure-water occasionally, and will require attention to fumigation, syringing, and shade (especially the light-coloured sorts).

After bloom, the plants should be placed out of doors, to strengthen the wood for the following year; they should have a shady situation until the middle of October, when they will require shelter from frost and wet. They may be repotted at that time, if intended to flower early.

EPIMEDIUMS.

BY AMATOR FLORUM.

EARLY spring-flowering plants are valuable and, comparatively speaking, their number is rather limited, the great proportion consists of bulbs) which are themselves by no means to be despised); but it is an advantage to have a good selection to intermix with them, unless the garden or parterre be designed exclusively for that class of plants. The genus *Epimedium* is a very interesting one, comprising several species which flower at the above-mentioned season, and, if not handsome, yet pretty or even elegant little things. I am astonished we do not see them grown to a much greater extent. In gardens generally we find for the most part one eternal round of certain plants, whilst there are many that have met with little or no favour except in the gardens of more refined taste and greater pretensions than ordinary.

Epimediums are all dwarf-growing herbaceous plants, of neat appearance, well adapted for planting in beds or borders, and have pretty, lively, green foliage and interesting flowers. Their culture does not require anything remarkable, or present any point of difficulty; they are (at least the following) quite hardy, and one species is a native of our own country, namely, *E. alpinum*. They will grow well in any light garden soil—the addition of a little sandy peat being, however, beneficial; and may be readily propagated by division of the roots. *E. alpinum* grows about ten inches high, and bears straw-coloured and coppery red blossoms. *E. diphyllum* is very dwarf, not reaching much more than half the height of the last species, and bears white flowers; the leaves are in twos, which has given the name to the plant. *E. grandiflorum*, one of the best: the flowers white, tinged with delicate purple, above the usual size of this flower; it grows from eight to nine inches high. This and the preceding are natives of Japan. *E. Musschianum* is a rather tall plant, and bears small straw-coloured flowers. *E. pinnatum* is singularly pretty; its flowers clear yellow, with broader petals than the other kinds; it always reminds me of a cluster of golden stars; then, again, there is its very neat lively foliage to recommend it, which should make it a favourite with everybody; it grows about nine inches high, and comes from Persia. *E. violaceum* bears larger panicles of flowers than the preceding, and of a deeper tint of purple; it is another Japanese plant, which country, according to Siebold, possesses other and probably finer species than any of the above described. It is to be regretted that our opportunities of communicating with the interior of those islands are so limited as to deprive us, perhaps for a lengthened period, of many very handsome hardy plants.

A FEW HINTS ON WINDOW GARDENING.

BY MR. ROBERT SCOTT.

PERHAPS a few remarks on this subject may not be uninteresting, especially to the fair portion of the readers of the *Floricultural Cabinet*, for whom these hints are principally intended.

There are many who have not the convenience of a greenhouse, but are, nevertheless, equally fond of flowers, and spend considerable sums yearly in purchasing plants, and bestow a great deal of pains in attending to them. It is not to be denied, too, that after all their endeavours their plants often look sickly, and finally die. The blame is frequently laid at the door of the florist who supplied them, for not furnishing healthy plants, when in almost every instance the fault lies with the buyers. The plants, it is true, which come into the market, and purchased from their respective florists, have generally been regularly watered, potted in soil according to their different habits, and grown in pots according to their size. The heat, air, and light have all been arranged and regulated as the utmost skill and experience could suggest.

The transition from all this regularity to the tender mercies of the purchaser is soon felt. Drowning or starving, or neglecting altogether, is no uncommon fate. The plants are taken home, pots placed in pans or saucers deluged with water, and the water left in the saucers, or they are set in some conspicuous place, and left to their fate. In the first case the leaves turn yellow and drop off, the flowers fall, and in a very short time all that can be seen of them is their naked stems, with little tufts of green on the tops of the shoots, which a few days before were in perfection. In the latter case the plants die with all the leaves and bloom upon them. Nearly all the evils attending plants grown in windows are to be traced to these two causes. I must not omit to mention another reason of the sudden decline in the health of young and tender plants taken from the greenhouse of the florist to the private parlour, which is the great atmospheric change. In the greenhouse they have been all their previous lives accustomed to an atmosphere exceedingly damp; and when removed from thence to the parched-up atmosphere of a heated room, they feel almost like a "fish out of water." To prevent this shock to the health of the plants, they ought for a fortnight or more after they are brought home to be turned on their sides, so as to prevent saturating the soil in the pots, and thoroughly sprinkled or syringed with lukewarm water every other day.

I will now attempt to lay down a few general rules, which, if properly attended to, will do away with nearly all the complaints under this head.

1st. Never to water but when the plants are actually in want of it; that is easily known by feeling the soil with the finger. While it is moist no water is needed. When it feels dry, then water, which will not be found to be necessary oftener than three times a week in autumn and winter, and once a day in spring and summer, giving it copiously every time, and allowing it to run away entirely from the plant, so that the pots may never stand in it. The water used should be either rain or river water. If necessarily from the pump or spring, it should be allowed to stand in the air for a day or two before using.

2nd. To give plenty of air at every possible opportunity, *when the weather is mild*, either by having the window up, or by removing the plants outside. If, in warm weather, this is done under a burning sun, the pots will have to be shaded, as the sun upon the sides of the pots would prove injurious to the young roots, and would greatly injure the plants; if in bloom and exposed to the sun, the flowers would soon fade and drop.

3rd. To keep the rooms where the plants are at as uniform a temperature as possible, and the plants themselves as near the window as convenient, except in severe weather, when they are better near the middle of the room during the night.

4th. To examine them occasionally, to see if the pots are full of roots. When this is the case, if the plants are thought worth it, shift them into pots of a larger size, potting in good soil; or if not shifted, more care must be used in supplying water, as they require a larger quantity when in this state. In summer, water frequently over the foliage, but not unless they also need it at the root as well.

These may be adopted as very general rules, though more absolutely necessary to some plants than others, but will be found beneficial to all.

There is a good deal to be considered in buying plants, in making the proper choice; for, however gratifying it may be to have those which look the best in full bloom, it is most satisfactory to have those which last the longest in perfection, especially those which have a succession of bloom, and *whose foliage is interesting when the bloom is gone.* This rule may be deviated from in behalf of Tulips, Hyacinths, Crocuses, and other bulbs, which are valuable when little else is in flower; they will also bloom in the darkest streets of our cities. These should be purchased either in the beginning of *November*, when the roots are dry for planting, or in pots, when they are beginning to grow; for if delayed till they are in bloom, nine-tenths of their value is lost, because they are interesting in every stage of their growth, from the first formation of the leaves to the perfection of the flowers. Every day of development has its charm, and therefore they ought to be possessed from the first. All these require a plentiful supply of water when in a growing state; and if kept cool after showing flower their season of blooming is prolonged.

REMARKS ON WISTARIA SINENSIS.

BY AN OLD SUBSCRIBER.

THE most magnificent specimen of this splendid climber I ever saw was trained upon the walls in the garden of the Horticultural Society, and occupied a space three hundred and seventy-five feet in length. When seen in full flower it was exquisitely beautiful, and few could look at it without wishing to have in their possession an ornament so exceedingly graceful.

Judging from the comparative unfrequency of its occurring in small gardens, it would appear not to be known that it is increased so readily as to be purchasable in most nurseries for a small sum, that it is perfectly hardy, and that it may be cultivated with the greatest ease, as well as in a considerable variety of ways. In stating these plain facts therefore, and referring to the plant itself as an evidence of its desirableness, I shall just glance at the several modes in which it may be advantageously treated.

As a greenhouse or conservatory climber, its attractions are sufficiently familiar and recognised, although, considering its extreme beauty and fragrance, and capacity of blooming several times in a season, besides flourishing in almost any aspect, and being by no means particular as to where it is planted, we should expect to find it in every greenhouse and conservatory throughout the country. In the character of a tall shrub, however, or a pole plant, for placing in beds or borders of conservatories, or as a covering to any of the pillars which support the roof, or even pruned into a state of dwarfness, and kept in a pot, or made to trail on rustic-work in the centre or back of a greenhouse, it is almost entirely unknown. To adapt it for any of these forms or positions, scarcely any treatment is required beyond a due attention to pruning; but it is absolutely necessary that this pruning be rigid, and followed up with the greatest strictness.

The natural habit of the plant being to produce very long and comparatively weak shoots, it, of course, commences to form these from the very earliest periods of its growth. Indeed, as soon as a layered branch has become a plant, by throwing out roots from that part which is plunged in the ground, and which has been partially cut through to facilitate the process, it will begin to develope those tenuous branches which are peculiar to the species; and where a bushy specimen is required, the pruning must be immediately started. Nor will it be at all prudent to cease this close pruning until the plant has been reared into the desired form, when it will also have acquired that tendency to bear short-blooming spurs, instead of stout branches, which will render the subsequent prunings light and trifling.

By this kind of routine therefore—taking care to keep the shoots cut back very closely, at least every year, and, in the first stages, twice or thrice each season—good shrubby or pillar plants may readily be obtained for the conservatory. Nor is it to be questioned that both the novelty and beauty of such objects would greatly contribute to the adornment of appropriate plant structures. But independently of the suitableness of the *Wistaria* for attaching to the pillars of a conservatory, and for being so confined by pruning as to cover them alone, without extending over any other portion of the building, it possesses an equally striking adaptation for affixing to poles whether of wood or iron.

And here I cannot but digress a little, to express my wonder that, in addition to those fine climbers which are in well-kept establishments made to depend so naturally from the roof of the house, instead of being retained to that trim, restricted form which was once so universal, the interesting open-ground practice of training climbers to poles is not more freely introduced. A pillar of climbing Roses, for example, supported by a pole, and standing out amidst the varied shrubs and trees of the conservatory, would be a most delightful object; and there is scarcely a climber of any description that might not be similarly managed; for, when once they have been brought, by pruning, into a duly compact form, with a tendency to produce *early lateral* shoots, these last will, if left almost untouched, soon fling themselves out around the stem in every direction, and gradually take that drooping and waving character which renders these objects so exceedingly graceful. The *Wistaria* is an excellent plant for this purpose, as experience has fully proved. By efficient pruning it will acquire, when at the height of ten or twelve feet, such a number of lateral branches, about a foot long, that after it has reached this state it will bear only blooming spurs; or, if it should happen to throw out a few of its long slender shoots, these will only serve to increase its beauty during the summer, and be pruned away in winter.

Treated as a dwarf shrub, and cultivated in a pot, it is, moreover, an extremely manageable plant, and makes a very agreeable object for the show-house, as well as for its actual interest, because the fragrance of its flowers can be better enjoyed. As in the cases before spoken of pruning is the means by which it is to be brought into this dwarf condition, and since it grows in most common soil, the compost supplied to it in a pot should be of the simplest nature, such as ordinary garden earth, while the pot itself need not be over-large. In alluding to the *Wistaria* as a pot plant, I must not omit to mention its capabilities *for forcing* under such circumstances. Under the stimulus of a little heat it developes itself finely, as most cultivators well know; and when its attractions are duly considered, it will I think be frequently, ere long, subjected to the treatment indicated. As a plant for forcing under any circumstances, it is a real acquisition to the rather limited number of such plants, and I shall be pleased if this hint should bring it into more general notice. Its recommendations are great freedom in the production of its flowers, great beauty, and an exquisite fragrance.

When grown out of doors as a a wall-plant, and trained over the face of a house or other edifice, the circumstance of its blooming before the leaves appear, though not in itself an interesting one, is a thing which might properly exercise the attention and inquiry of the culturist, in order to associate it with some other plant which would supply the lacking verdure. Perhaps the Ivy, being the most verdant of all plants with a climbing habit, might be very appropriately blended with the *Wistaria* in clothing a wall or a portion of a building. From the spreading and rampant nature of the Ivy, it would necessarily require a great deal of thinning and pruning, to prevent it from over-running the *Wistaria*, and smothering it; but this could be easily prevented, and if only half a dozen branches of bloom were here and there visible amidst the dark and glossy foliage of the Ivy, the effect would be most charming. But perhaps the *Cytisus laburnum* is more appropriate than the Ivy for the purpose; it blooms nearly at the same time, has an allied character, and possessing a greater profusion of fine foliage, might be happily mingled with the *Wistaria*. There is no difficulty in training the Laburnum against a wall; and by intermingling the branches of the two plants, their similar racemes of blue and yellow blossoms would create a peculiar and pleasing effect.

In treating the *Wistaria* as an open-ground plant, it has hitherto been chiefly employed for walls or against houses; and its singular adaptation for decorating arbours, bowers, etc., seems to have been quite overlooked. It is exceedingly well fitted for covering those trellised arches of wood or iron which are sometimes placed over the walks in flower gardens and pleasure grounds, as nothing could be more delightful than a walk beneath its lovely blossoms. Those open-roofed pavilions or canopies, too, which are occasionally made of rustic wood, and put up in similar places, afford an equally good position for this charming plant.

What so appropriate in the way of a climber for arbours, or the retired erections for rest and cool enjoyment, so common in some gardens, as the *Wistaria?* To look through its noble racemes of bloom, fringing the edge of the roof, or surrounding the pillars along the front, would constitute the perfection of a foreground to a scene either of rural beauty or of enriched and elaborate cultivation.

The *Wistaria* is quite as hardy as the Laburnum. I have spoken of it fully as it deserves, and hope enough has been said to increase its cultivation, and to give it that diversity so essential to the production and maintenance of interest.

LEAVES AND ROOTS, THEIR FUNCTIONS AND STRUCTURE.

BY CLERICUS.

To the practical and scientific cultivator, a knowledge of the organs of plants, their uses and functions, must not only be highly interesting, but most important. When we look at a plant, no matter how minute and delicate, or how gigantic and magnificent its proportions, we behold a thing endowed with life, in which are various organs necessary to the sustentation and production of its several parts. Let us for the present consider the structure and functions of those organs which more immediately call for observation, *i. e.*, the leaves and roots, as it is in these that the most important changes take place, by means of which the produce of the plant is perfected, and upon which the gardener must bestow his attention, that he may reap his due reward.

The functions of the leaves are intricate, and not easily understood. They are composed of numerous vessels, reticulated and interwoven one with another; of cellular tissue, which fills up the intervening spaces; of a membranous covering, which on the upper surface allows of *transpiration*, that in plants may be compared to the insensible perspiration of the surface, and the humidity exhaled from the lungs of animals, and on the under surface *stomata* or reservoirs for the reception of certain gases which are contained in the atmosphere. Here, then, we shall find a most important part of the vegetable economy taking place; here the sap of the plant is elaborated into the proper juices, the absolute article which that plant is to yield. Hence we can understand why the vigour of a plant depends upon the healthy green state and luxuriance of its leaves; and hence we can understand, also, why a plant having its leaves destroyed or eaten off as soon as they are unfolded cannot be expected to yield fruit the following season.

Let us enter farther into the structure of the leaves. It must be plain that if such important ends are to be gained in the leaves, we must expect an organization of a complex order. Yet the subject admits of elucidation; and a few observations may divest it of much of its complexity. It is not unlikely that the sap in the leaf may be compared to the capillary system in animals, and that while some of the ascending vessels terminate in the returning vessels, yet that much of the juices are transferred from one to the other by imbibition. I have said that the leaf is composed of numerous vessels, interwoven through each other. Hence you will bear in mind that there are two sets of vessels here intermixed; the one containing the sap which has ascended from the roots, the other those which are to convey away that sap after it has been elaborated into the proper juice of the plant. It is in the leaves that the product of the plant is formed, that the ascending sap is elaborated or assimilated into the proper juice of the plant, and this is effected by the combined action of light, the solar ray, and the atmosphere—affording a beautiful example of the wonderful and most effectual works of nature, a chemical laboratory in the minutest leaf, exceeding in beauty and design the most elaborate and ingenious of the works of art. Thus, to form our compound in the leaves, we derive the water and inorganic constituents of plants from the soil, the carbon and nitrogen from the atmosphere.

The carbonic acid of the atmosphere is supposed to amount to from the 1000 to 2000 part of its bulk; the atmosphere being composed of four parts of nitrogen and one part of oxygen, having the small portion of carbonic acid gas already stated—carbonic acid gas, as the reader is no doubt aware, being a compound of one part of carbon to two parts of oxygen. Now the *stomata*, or pores of the leaf, being open, inhale or receive the carbonic acid of the atmosphere; and as it is a peculiar property of the solar ray, acting upon green vegetable matter, to decompose carbonic acid gas, this chemical decomposition is effected in the *stomata*. The carbon permeates the sides of the vessels, is taken into, and combines with the juices already there, while the oxygen is liberated in a free state. Now, carbon is the *absolute necessary* ingredient required for the growth and substance of plants. It is that, in fact, which forms the *lignin*, or greatest portion of the wood, which, when burnt and divested of its extraneous matter, is carbon in its solid state. But we are now speaking of carbon in its gaseous form, which, however, is never formed, and cannot be realized pure, or in a free state, but always joined with some other gas or substance; thus, while floating in the atmosphere, it is in the form of carbonic acid gas. You are aware that this gas is most noxious and detrimental to animal life, and but for this wise provision of nature, would accumulate in such quantities as to depopulate the world. But the Great Ruler of the universe has ordained that this deleterious compound should be the very food and substance of every tree of the forest and blade of grass which clothes the fields. In many of the natural processes of this life, and in decomposition after death, this gas is generated. When we breathe we inhale an atmosphere of oxygen and nitrogen, with a very small proportion, as already stated, of carbonic acid gas; but we expire an air loaded with it. The act of combustion is to generate carbonic acid gas. Fermentation and decomposition, or putrefaction, all generate this noxious gas. Nay, the generating of this gas exists in the very act whether of germination, vegetation, combustion, fermentation, or putrefaction. If, then, this gas, so destructive to the animal economy, is generated in such quantities, that if some means were not at hand to again resolve it into its elements it would render the globe uninhabitable, it is gratifying to know that those means are at hand, in every leaf which is exposed to the surrounding atmosphere. Light and sunshine are the two great influences which act on vegetable matter, in restoring to a proper state a deteriorated atmosphere; the former having the peculiar faculty of giving the green colour to vegetable matter, and the latter, by its influence on green vegetable matter, in decomposing carbonic acid gas, the carbon being retained, and the oxygen set free. You are, of course, aware that oxygen is the grand supporter of animal life; without its aid and application, animal life would quickly become extinct. It is the supporter of combustion, and its presence is required in the germination of seeds and the vegetation of plants.

The leaves, then, are the organs of assimilation. In them the sap, having in solution the inorganic constituents of the plant derived from the soil, and deriving the carbon, which has been retained in the *stomata*, from the atmosphere, as also its nitrogen, elaborated now into the proper juices of the plant, returns through the descending vessels, on the inner side of the bark, to the root.

On the subject of carbon being derived from the atmosphere Professor Liebig says—"It is not denied that manure exercises an influence upon the development of plants; but it may be affirmed, with positive certainty, that it neither serves for the production of carbon, nor has any influence upon it, because we find that the quantity of carbon produced by *manured* lands is not greater than that yielded by lands which are *not* manured. The discussion as to the manner in which manure acts has nothing to do with the present question, which is, the *origin of carbon*. The carbon must be derived from other sources; and as the soil does not yield it, it can only be extracted from the atmosphere."

Relative to the nitrogen of plants, Professor Liebig states, "Plants, and consequently animals, must therefore derive their nitrogen from the atmosphere." And again he says, "Nitrogen is found in lichens which grow on basaltic rocks. Our fields produce more of it than we have given them as manure; and it exists in all kinds of soils and minerals which were never in contact with organic substances. The nitrogen in these cases could only have been extracted from the atmosphere." "No conclusion can, then, have a better foundation than this, that it is the ammonia of the atmosphere which furnishes nitrogen to plants."

I have already said that the *stomata*, or pores of the leaves, as it were, *inhale* the carbonic acid gas of the atmosphere, where it undergoes decomposition, retaining the carbon, and, as it were, *exhaling* the oxygen. This, by the older physiologists, was compared to the breathing of animals. Hence the leaves were termed the lungs of plants, the organs of breathing, or of respiration.

I shall say a few words on the functions and structure of the roots in an early number of the *Floricultural Cabinet*, as I fear I should be trespassing too much on your valuable space at present.

(*To be continued.*)

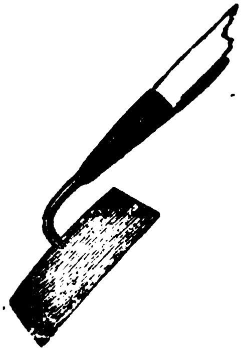
RECENT IMPROVEMENTS IN HORTICULTURAL APPARATUS, IMPLEMENTS, AND MANUFACTURES.

THE Horticultural Society of London deserve the thanks of the gardening public for their praiseworthy efforts to bring together specimens of all improvements and new inventions connected in any way with our science, at their exhibitions. The result of the gathering at the late Chiswick show was certainly very satisfactory and will probably lead to a more extensive display in future. Inventors and manufacturers will find it conducive to their interests to exhibit a new tool or specimen of any manufacture used in horticultural operations at these annual gathering of the gardening public, and the gardener will derive sound instruction as well as a knowledge of those improvements calculated to assist him in his labours. Believing it will be interesting as well as useful to our subscribers, we shall, from time to time, notice such of these inventions as appear to be most valuable, for which purpose we have made notes from the collections brought together at the Horticultural Exhibitions and the Crystal Palace, as well as from specimens forwarded to us by the inventors.

Messrs. Gidney and Son, manufacturers of horticultural tools and implements, East Dereham, Norfolk, have brought out many useful articles, of which we shall have occasion to speak more at length hereafter, for the present we shall notice a few. Their improved Prussian hoes are extremely useful, and capable of being used with great effect. They are made with both single and double edges, giving a clean cut, and leave the ground remarkably level after it has been hoed; an expert hand will get through considerably more work with these tools than with those of the old form. We understand these hoes have received silver medals at various exhibitions. Gidney's improved Norfolk hoe is recommended for heavy work, and possesses the advantage of cleaning itself, as the mould cannot adhere to and clog about the neck, as in the old form of "eyed hoe."

Single Edge.

Double Edge.

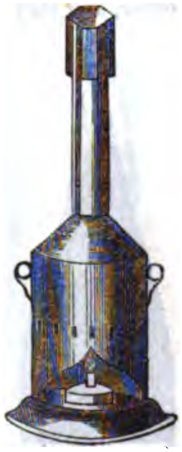

Improved Norfolk Hoe.

Two other hoes are worthy of notice, namely, the horizontal hoe and the improved drill hoe; the former has the blade set at the same angle as the Prussian hoes, is not liable to clog, and cuts up weeds without destroying the evenness of the ground; the latter implement supplies a want that has been long felt by gardeners—a tool that will make a good drill, of any required depth, and angular to the bottom, in order to ensure a perfectly straight line of plants. This the implement alluded to performs most satisfactorily.

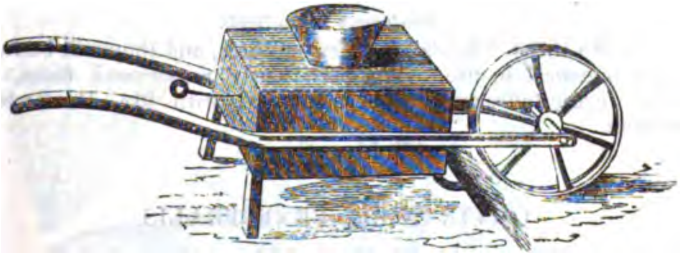
Horizontal Hoe.

Improved Drill Hoe.

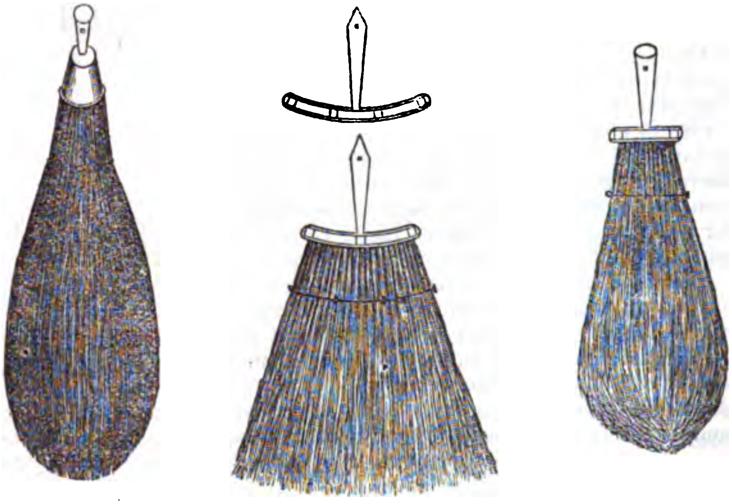
The self-acting fumigator of Messrs. Gidney is a portable article for use in conservatories, greenhouses, pits, and frames, and is really a useful invention, as by its means the unpleasantness of contact with smoke is avoided. It merely requires to be lighted and set in the greenhouse, when it gives off the fumes of tobacco or sulphur, etc., without any farther attention, and does not require the constant blowing of other similar apparatus, either by bellows or fan, an improvement that must recommend it to all who have experienced the annoyance and inconvenience attendant on the use of the old forms of fumigators. To use it, the tobacco should be moderately dry, and be placed in the small moveable tray at the top of the tubular chimney; the lamp, fed by naptha or spirits, is then lighted, and the tobacco burns with a dense smoke; the tubular chimney becomes heated, and a regular draught of air through it for some time serves to keep up the combustion, as a very small quantity of naphtha serves in the lamp, which may therefore be allowed to burn out. Another recommendation of this fumigator is its small cost, for there is nothing expensive in its construction, and very little tobacco suffices for a charge.


Self-acting Fumigator.

The same eminent firm have also brought out a small barrow for distributing liquid manures, or to act as a handy water-cart. It is made of strong galvanized iron, with a funnel at the top, and the supply can be easily regulated by the person who drives the barrow. This supplies a want that has long been felt, and enables us to apply liquid manure or water in an easy and satisfactory manner. Wrought iron barrows, lighter and stronger than wooden ones, are now made extensively by Messrs. Gidney, and are much more lasting and easier to work with than others.


Gidney's Liquid Manure Barrow.

Mr. W. Henderson, of the Gardens, Dunkeld, has effected an improvement in that most useful article the broom, by his newly patented broom-heads, which are made of metal, and allow of the broom being renewed whenever it has become old and worn out. The metal is made so as to embrace tightly the material of which it is desired to form the broom, whether twigs, whalebone, or cocoa-nut fibre, etc., and is designed so as to be formed into any shape, as round, broad, and narrow fan shapes, etc., and the size of the brooms may be varied at will, while the material is firmly held by teeth and regulated by the simple turning of screws. Another recommendation is that these brooms are not liable to come loose, or to get out of order, and they are very light. Any gardener or workman can make a broom with these "heads" in a few minutes, and they will be found very economical in use. We particularly recommend them, and believe every purchaser will be pleased with Mr. Henderson's invention.



Henderson's Broom Heads.

(*To be continued.*)

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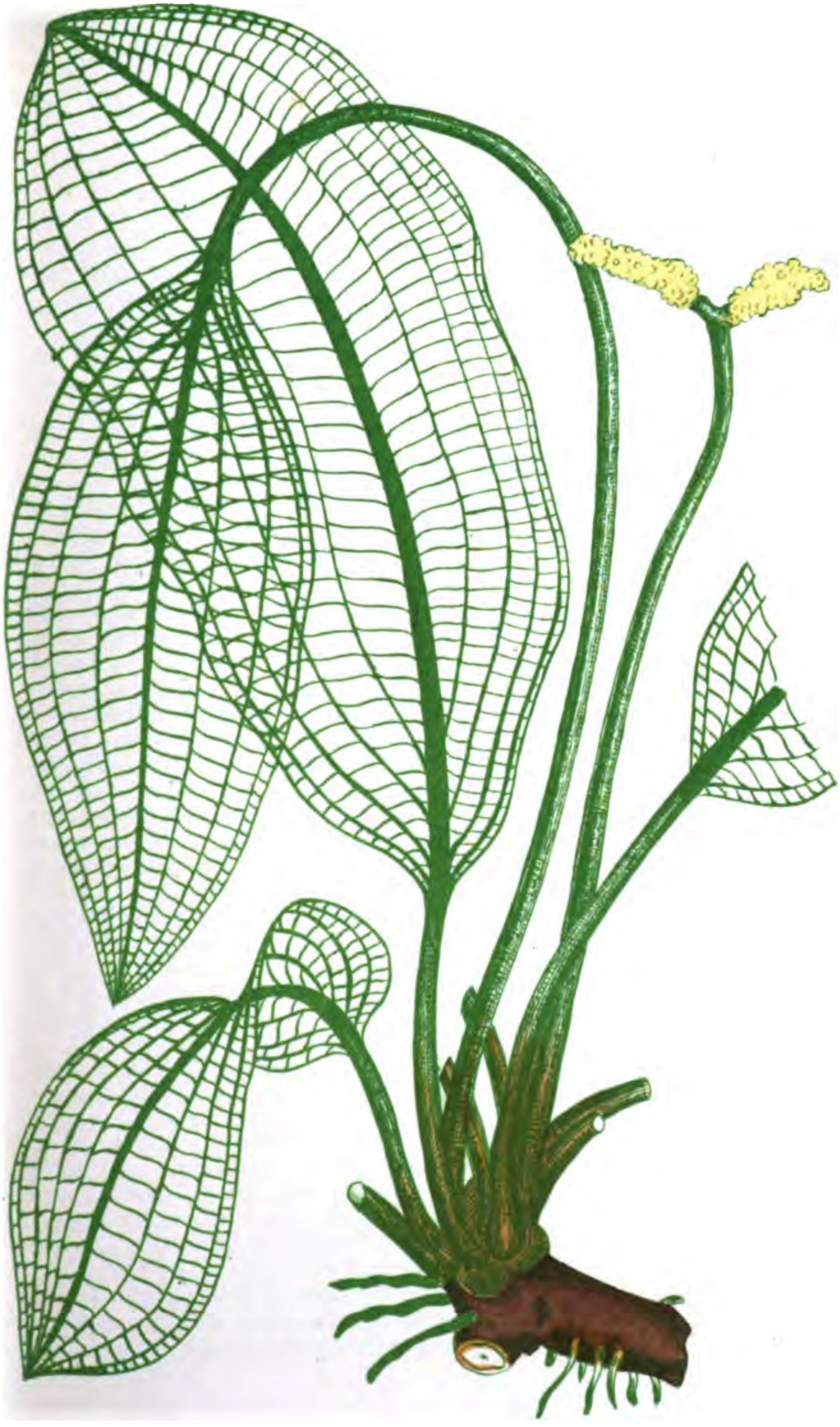
OUVIRANDRA FENESTRALIS.

(*See Illustration.*)

PERHAPS, without exception, this plant presents one of the most wonderful forms in the whole range of the vegetable kingdom, and is certainly a great curiosity. It is an aquatic, from Madagascar, a country whose botanical riches are even yet imperfectly known, and from whence we have received several very fine plants. The *Ouvirandra*, as might be expected, requires stove treatment, and for a stove Aquarium is a singular ornament. By reference to the plate it will be seen that its leaves, supported on long footstalks, are composed of a net-work of veins, which look very pretty when floating on the surface of the water. It may be grown in a glass vessel, or pan of water, in the stove, where the temperature of the water is maintained as nearly as possible at 70°.



OUVIRANDRA FENESTRALIS.

NOTES ON NEW AND SELECT PLANTS.

MELAMPYRUM INDICUM. Nat. Ord. *Scrophularineæ.*—A distinct species, occurring in Khasia, Eastern Bengal, where it forms a slender twiggy herb, about two feet high, bearing small lanceolate leaves, and scattered flowers of a blood-red colour, half an inch long. (*Journal of Botany*, vol. ix. p. 8.)

100. Thunbergia Harrisii. Nat. Ord. *Acanthaceæ.*—A splendid species, resembling the lately described *T. laurifolia*, but with larger and more deeply coloured flowers. It has flowered for the first time in this country with Messrs. Veitch, of the Exeter and Chelsea Nurseries, who received young plants from the Kew establishment. Its native locality is Rangoon, as also Moulmein, where it is a very common climber, of vigorous habit and, most profuse bloom. Although this striking plant has been cultivated for some time at Madras and Calcutta, it has been but very recently introduced to England, and never before figured in any botanical work. It will doubtless become a great favourite in the stove. The flowers resemble in form those of a *Hexacentris*, to which genus some have been ready to refer it, although Sir William Hooker has clearly established its claim to be considered a true *Thunbergia;* in size they measure three inches and upwards across the corolla, having a large spreading limb, which as well as the other segments are of a fine porcelain-blue, shading off to white towards the mouth of the tube, which is orange-yellow inside, and buff shaded beneath, with pink on the exterior; they are borne in large clusters, or pendent racemes, of twenty or thirty flowers in each, and make a fine contrast with the rich green foliage. The leaves, which are ovate-acuminate, measure about five inches long, and two across. It is a climbing shrub, and will be found to do well trained against a wall, or for trellis-work, and is doubtless the finest climber for the stove that has been introduced for many years. (*Bot. Mag.*, 4998.)

101. Burtonia scabra. Nat. Ord. *Leguminosæ.*—This beautiful plant was originally introduced upwards of fifty years back by Mr. Peter Good, from King George's Sound, in South Western Australia but was apparently lost within a few years afterwards. It has been brought into cultivation again through the means of Archbishop Whateley, who gave seed to Mr. Bain, of the Botanic Gardens of Trinity College, Dublin, with whom it has flowered in the spring of the present year. ***Burtonia scabra*** is a small Heath-like shrub, bearing abundance of small pea-shaped blossoms, resembling a *Gompholobium*, the wings bright pink, and the keel deep red. The branches are thickly clothed with narrow, rather downy leaves; the habit of the plant is stiff and erect. It produces its lovely blossoms in great abundance in a well-aired greenhouse. (*Bot. Mag.*, 5000.)

102. CÆLOGYNE ELATA. Nat. Ord. *Orchideæ.*—A native of Bhotan, Nepal, and several other districts of the East Indies, chiefly remarkable as belonging to a group of this genus, having hard imbricated scales immediately below the flowers. The scape bears a rather long spike of eight or ten blooms, about an inch long, creamy white; the lip spotted and blotched with orange, having three slightly raised wavy ridges, dotted with bright red. It flowers in April. (*Bot. Mag.*, 5001.)

REVIEWS.

Ocean and River Gardens; a History of the Marine and Fresh-water Aquaria, with the best Methods for their Establishment and Preservation. With twenty coloured plates from life. By H. NOEL HUMPHREYS. London: Sampson Low, Son, and Co., 47, Ludgate Hill, pp. 225. Price 10*s.* 6*d.*

Directions for the Preparation and Management of the Marine Aquarium. By R. M. STARK. Edinburgh: Edmonston and Douglas, pp. 30. Price 6*d.*

THE pleasing study of the natural history of the waters is becoming daily more popular; and as a means of diffusing an extended knowledge of nature in some of her most lovely aspects, as well as of an increasing and almost endless source of amusement, deservedly so.

To meet the demand for information on the management of aquaria, both salt and fresh-water, several works of more or less pretensions have appeared in rapid succession, for although there is no great art in treating the contents of an aquarium properly, and securing the health of its inmates being simple and easy when one knows how to do it, it is a matter in which the beginner will probably fail, unless he be acquainted with a few main points to which his attention should be chiefly directed. To point out the best subjects for "cultivation," and the most successful method to be pursued, the aquarian may now avail himself of a variety of works,—two excellent ones we have great pleasure in introducing to the reader; the one by Mr. Noel Humphreys, a gentleman of acknowledged taste and known experience in this fascinating study, and the other by Mr. Stark, of Edinburgh, who has made cryptogamic botany and microscopic investigation his peculiar study. The two works are adapted to supply the wants of the beginner as well as the more advanced student.

"*Ocean and River Gardens,*" is an excellent work, written in Mr. Humphrey's most pleasing style, and supplies a fund of information. There are, we should imagine, no admirers of aquatic natural history who would regret the outlay of half a guinea for this book, for not only is it written in a most attractive style, and illustrated with twenty beautifully coloured plates, but it contains an amount of sound, practical information we have not hitherto met with. Speaking of the " floor of the ocean," Mr. Humphreys observes—

> " The wonders of the ocean floor do not reveal themselves to vulgar eyes. As the oracle was inaudible to sacriligious listeners, and as none but poetic ears heard the cadence beating of the feet that danced to unearthly music, near the fountain haunted by the muses of classic fable—so none but the initiate can see the myriad miracles that each receding tide reveals on the ocean floor. The initiation, however, is not mysterious; there are no dark rites to observe—no Herculean labours to accomplish, as I have said, before entering upon the noviciate which at once opens a large area of unexpected pleasures, and an ample field for admiration and investigation. A few elementary works carefully studied, or even this present little book attentively perused, would supply the first helps towards *seeing*, at all events, a portion of the 'wonders of the shore,' as the brilliant author of 'Glaucus,' has eloquently termed those revelations of the retiring deep. * * *
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> " Those who cannot *see* nature, who cannot see more than an unclean thing in the little creeping beetle, are like one gazing at the carved record of an obelisk, who perceives in the hieroglyphic scarabæus simply the sculptured figure of a beetle, and no more. They are in a state of 'Egyptian darkness' as regards one of the highest and most enchanting fields of human research. But to those who have acquired this rare though easy art, and learned to see nature, even to a moderate extent (for in that art are an infinite number of degrees and gradations), the aspect of the ocean floor must present an appearance as beautiful and strange, and seemingly as supernatural, as the wildest imagination could depicture.
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> " When poets would travel, in their inventive flights, to other floating and revolving worlds than ours, they describe rosy skies, instead of azure, and trees like branching crystals, with jewel-like fruits glittering on every stem. They present us with pictures, in short, in which all the ordinary aspects of our planet are reversed, or metamorphosed, in the region of their invention; yet in their wildest and most fanciful pictures they do not surpass in strangeness the wonders of the world beneath the sea.
>
> " On the land, we have, as the ordinary aspect of nature, the green herbaceous mantle of the earth below the eye, and the azure sky above; while a spectator, standing beneath the water on the ocean floor, would see these features more than reversed; he would see above him a liquid atmosphere of green, and below, an herbage of red or of purple hue, exhibiting strange yet exquisite forms, such as no terrestrial vegetation displays. Roseate shrubs of jointed stone, and arborets of filmy glass, and creatures full of active, energetic life, whose forms are stranger still, both in structure and appearance; mere worms, whose colours are gorgeous as the tints of the butterfly's wing, or the peacock's tail, or the humming bird's breast.
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> " What scenery is formed by those miniature forests of *Delesseria sanguinea*, so lovely in their tones of soft rich crimson; and those fan-like shrubs, the crispy graceful tufts of the brightly tinted and singularly formed *Padina pavonia*; the tree-like masses of *Callithamnion arbuscula*, the delicate *Ptilota plumosa*, and the purple-tinted *Corallines*, forming themselves into those
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> 'Arborets of jointed stone,'
>
> so exquisitely described by a recent poet. And then there are the high waving fronds of the grandly graceful *Porphyra vulgaris*, the deep carmine of the *Iridæa edulis*, the nacreous tinges of the *Chondrus crispus*, and the blood-red of the splendid *Rhodymenia lacinata*, with its embroidered and lace like edges; these, with the gorgeous tufts of the rich purple *Bangia*, and other objects which form the elements of still life in a submarine landscape, surely cannot be surpassed, either for magnificence of colour or variety of structure.
>
> " But to these features must be added others more extraordinary—forms that the

elder naturalists imagined between the animal and vegetable creation, but which are now known to have no affinity with plants, though they exhibit, under many aspects, all the appearance of expanded flowers of various hues, displaying the forms of the Carnation, the Anemone, the Mesembryanthemum, and the blossoms of other beautiful flowers whose names they bear. These curiously beautiful zoophytes, the wonderful *Actiniæ*, exhibit every tone of colour, from purple and scarlet to green and white, and might be taken in their picturesquely placed groups for rare exotic flowers, planted among the rosy-tinted shrubs expressly to add the last touch of richness and effect to the scenery of an ocean flower-show.

"Yet they are not flowers, but animals—sea monsters, whose seeming delicate petals are but their thousand Briarean arms, distinguished as the petals of a flower, and expanded to seize the unconscious victim as he passes near the beautiful form—fatal to him as the crater of a volcano; in which he is soon engulphed by the closing tentacles of his unsuspected enemy. And if he pass not near enough for that deadly floral embrace, and escape the fatally beautiful petals, those pretty crimson tubercles that dot so gracefully the seeming stalk, beneath the seeming flower, can shoot forth a thread, armed, like the fisher's line, with a barbed hook, which strikes and secures the distant prey; and so the unwary *Annelid* or *Infusory* is captured and devoured. In this capacity the *Syren Actinia* has been compared to Pope's spider, who

'Feels at each *thread*, and lives along the line.'

But then the living thread of the *Actinia* (or of the *Cirriped*, which has a similar power), is a fact, while the sensitive gossamer of the poet is a fiction.

"But notwithstanding these ogre-like attributes, the lovely *Actinia* long deceived even our naturalists as to its true nature—and of course the poets—from whom this flower-like disc and petaloid tentacles completely concealed his grosser nature. Then, as the tide recedes, he so meekly closes his beautiful *oubliette*, with so much grace, and looking so much like those shrinking flowers that close at eve, as though they dared not to look on the black darkness of the night, that it is no wonder the poets beguiled, and that the romantic Southey sings of the *Actinia* as of some lily of the deep that, on the retiring of the ocean,

'Sinks down within its purple stem to sleep.'

"To add to the wonders of this strange landscape, come the creeping *Nudibranchs* and *Tectibranchs*, gliding over the gracefully waving *Algæ*; their elegant forms, decorated with their external breathing apparatus, so delicate and fragile, that it looks like a spectral star gliding above them, or like the pale skeleton of some delicate flower, so fine are its milk-white filaments, arranged nearly always in a symmetrical and star-like form, and then there are the singular and shadowy *Medusæ* floating past, in the form of parachutes, with low suspended cars, just as though the science of ballooning had been carried to perfection under the sea, and that they were made of elastic glass, instead of silk, though richly flushed with iridescent and varying tinges, sometimes of metallic azure, and anon of emerald green; hues that seem added by some delicate process which the glass-blowers above the water have not yet discovered. Some of these creatures are fragile as a soap-bubble, to which their transparency and prismatic flashes of colour give them a curious resemblance; and their ephemeral existence, dependent upon the will of even an angry ripple of the element in which they live, is doubtless as brief.

"The deep has even its butterflies, as well as the land: for the fluttering of the fins of some small and brightly coloured fish has been compared to the action of the wings of moths—as have also the locomotive membranes of some of the animals of the univalve shells. Then there are minute phosphorescent animals, which represent the fire-flies of the south, pouring a living flood of light through the water, as they glide along—some emitting silvery, and others golden flashes, like floating lamps that seem hurrying to light up the darkness of the far ocean depths.

"Even the worms are gorgeous and wonderful in this subaqueous world. The

Serpulæ, with their radiating coronets of crimson *branchiæ*; the *Pectinaria*, with its golden comb, glittering in burnished brightness; and the *Nereis*, with white and crimson stripes, are all wonderful as well as beautiful objects. But the *Halithea*, or Sea-goddess, as Lamarck has named it, from the extraordinary beauty and the gorgeous colours that radiate from the silky hairs with which it is clothed, surpasses them all. These, and other wonders of still greater beauty, will reward the persevering student who learns to *see* them; but he *must* learn."

Mr. Stark's "Directions" are brief, consistently with the low price of his little book, but decidedly practical, and show in a clear and concise manner the chief points to be attended to in the formation, stocking, and subsequent management of the marine or salt-water aquarium. For the information of such of our readers as are not already in possession of the "Directions," and to show how easily a supply of suitable water may be obtained, even in places where sea-water is not to be had, or with difficulty, from its native source, we venture to transcribe Mr. Stark's instructions regarding the supply of this necessary element. He says (page 10)—

"At this stage the aquarium is supposed to be ready for filling with water, and prepared for the reception of its inhabitants. Those who reside at or near the coast will have no difficulty in procuring the necessary supply. Where at all practicable, it is desirable to have it from mid-channel, as being that most free from impurities; that, however, from the shore, especially at full tide, will do very well, so that it is not taken too near the inlet of a fresh-water stream, or in places where noxious or liquid matters may be flowing outwards from the land. The casks or jars which are used for bringing it home, as well as their stoppers, must be scrupulously clean, and free from the taint of any liquid that they may have contained previously, as a little neglect in this particular has frequently proved fatal to large numbers of the marine animals. The tannin principle in new oak wood casks is prejudicial. Nice plans of baskets, fitted up for the use of collectors, with glass jars, bottles, and implements for chipping off the rocks, with weeds and sea-anemones, are described by Mr. Gosse and other writers. These vessels should stand for a day or two before the water is drawn off into the aquarium, that any sediment may fall to the bottom. To prevent any shaking when it is done, a syphon of zinc or gutta-percha should be used, allowing the water to fall on a smooth, hard surface, such as the bottom of a saucer, that the gravel or sand be not disturbed. Such as live at a distance from the sea, and have a large aquarium to supply, instead of getting the necessary quantity of water sent them, may, with the aid of the chemist, provide themselves with an artificial preparation, in which marine animals and plants will thrive almost as well as in their native element. The following component salts, when mixed with rather less than four quarts of spring water, were found by Mr. Gosse (see *Magazine of Natural History* for July, 1854) to answer the purpose admirably:—

Common table salt	3½ ounces.
Epsom salts	¼ ounce.
Chloride of magnesium	200 grains troy.
Chloride of potassium	40 „

Those who do not wish to have the trouble of obtaining and weighing separately the different ingredients, may have them done up in one packet. Enough for three gallons may be had for a shilling."

The following judicious observations on the selection of sea-weeds, etc., should be read with attention, as some of these delicate forms of vegetation are more suitable than others for small aquaria:—

"Having thus provided our aquarium, whatever be its form, or the material of which it consists, with the necessary bottoming of sand or gravel and proper water, we proceed to stock it with a suitable variety of plants and animals.

"Plants are mentioned first, inasmuch as it is on the oxygen given out by them, under the influence of light, that the life and health of the animals in a great measure depend. It is necessary, as has been already noticed, that these Algæ, or marine plants, be immersed in the water for some time previous to stocking it with animals, that a supply of the necessary air be generated, and a growth of animalcules which constitute a great proportion of the food of the Actiniæ, etc., be promoted. This is more especially requisite, when water made artificially is employed. Further reference to this subject will be found under the head of *aeration*.

"The green Algæ, known to botanists as *Chlorosperms*, are found to be those which give out oxygen in most abundance. They grow in greatest quantity near high-water-mark. Of these the broad-leaved *Ulva* is the most useful. The plants of this found growing in the tide-pools are always more succulent and healthy than those left dry among the stones and rocks by the receding tide. Next to it may be mentioned *Enteromorpha*, with narrower fronds, and the *Conferva* and *Cladophora* plants, which produce bunches of silken or woollen fibres floating in the sea-side pools. These therefore, especially the *Ulva*, it is better to have first and by themselves in the aquarium. A few small species are quite sufficient for several gallons of water. Next to these in point of usefulness are the red-spored Algæ (*Rhodosperms*), those beautifully cut and feathered species so well known in a dried state. Of this large family, *Lawrencia pinnatifida*, *Iridæa edulis*, *Phyllophora rubens*, *Corallina*, some *Delesseriæ*, *Chondrus*, purple specimens, and *Polysiphonæi*, have been chiefly recommended. They must, however, be introduced at first in small quantities, and with caution, as they may be regarded as the 'florists' flowers' of the aquarium. *Griffithsia setacea* is said to be the 'only one' out of many 'that may be safely used in a well-seasoned tank of artificial water.' The olive-spored Algæ (*Melanosperms*), represented by tangles, oar-weed, etc., are, with two exceptions, unsuited for the aquarium. They give off a mucous substance in great quantity, which cannot be got rid of as in the wide ocean, and speedily injures the purity of the water. In procuring these plants, it is desirable to have them in a fresh and growing state, so that if chipped off with a portion of the rock or stone on which they are found growing, success with them is more certain. The *Ulva*, however, is not quite so nice, and it is a frequent thing to find it in an aquarium floated with a piece of cork. Any decaying portion, which in the green species appears white and in the red, orange patches, should be carefully removed as soon as it becomes visible, and if this is attended to, the rooting of the plant is a matter of very little importance. Before putting in the weeds, care should be taken to remove from them, or the pieces of rock to which they may be attached, any small shell-fish, sponges, or zoophytes which may be adhering to them, otherwise they will speedily die and corrupt the water. It is amazing how much damage may arise from a very little neglect in this particular. The red species are more apt to be infested with the sponges and zoophytes, and some of these can scarcely be detected till they are put in water, when the parasites are detected by the rough or hairy substance clothing their stems and fronds.

"Besides promoting the health, and affording protection to the animals in the aquarium, these Algæ, when judiciously arranged on its floor or rockwork, add much to its beauty, and afford scope, as has been already hinted, for exercising the taste of the aquarian."

FLORICULTURAL OPERATIONS FOR SEPTEMBER.

IN THE FLOWER GARDEN.

GENERAL OPERATIONS.— *Borders*, dress, and continue to fill up spaces, where bulbs have been removed, with autumnal annuals in pots. *Composts*, collect and prepare. *Divide* perennials and other hardy fibrous-rooted plants. *Edgings*, trim, or plant new ones. *Evergreens*, plant. *Grass Seeds*, sow. *Hedges*, clip, now is the best time. *Seeds*, gather as they ripen, and sow hardy kinds. *Stems*, remove all decaying ones, so as to maintain a neat appearance. *Sticks*, place to such tall plants as require them, and tie up; remove where they have become unnecessary by tops dying down, etc. *Surface soil*, continue to stir. *Transplant* perennials, etc. *Turf*, lay down. *Verges*, trim. *Walks*, keep clear, sweep, and roll hard. *Water*, attend to; many plants will only need a reduced supply. *Weeds*, continue to hoe and pick off.

Cultural Department.—*Aconite, Winter*, plant early in the month. *Anemones*, sow seed, and plant. *Annuals, hardy*, sow. *Auriculas*, may be repotted, if not already done; see last month's directions; shade and water; prepare a frame for their reception. *Biennials and Perennials*, sow, and transplant to gain strength. *Bulbs*, should now be planted or potted; the pots may be plunged in dry ashes; plant out in patches Snowdrops, Crocuses, Jonquils, Hyacinths, and Tuberoses; the former two or three inches deep—the last two, five or six inches. *Carnations and Piccotees*, layers may be taken off; they should be planted three in a forty-eight-sized pot, or two in a sixty; place them on tiles, or a floor made of concrete, to prevent worms getting into the pots; the soil should be sweet and good, but rather poor, to prevent the layers from unduly pushing, also have a liberal drainage to prevent injury from an excess of wet. Let the petals of all decaying flowers be immediately taken away from all pods likely to produce seed; they will be liable to rot if this be not done. *Chrysanthemums*, old plants grown in the open ground, that are to be taken up in October with entire balls, and potted in order to bloom in-doors, should now have the roots cut, by means of a sharp spade, round the plant at a suitable distance, to form a ball of the proper size for the pot. This operation prepares them for the purpose, without giving such a check to the plant as to prevent its blooming satisfactorily. Give water and liquid manure liberally to plants in pots, and take in-doors the *early* flowering kinds. Any plants that it is desirable to grow to an extra size should be shifted immediately into large pots, and placed in a warm situation out of doors. Layer the branches of the prepared plants in the open ground by the middle of the month, securing each by a peg, and raising the layer somewhat, to induce erect growth, and tie it to a stick. *Dahlias*, flowers required for exhibition must be shaded from the sun, and protected from rain or powerful winds. It is best to begin at an early stage with such flowers, so that the petals may be preserved from injury. It must be borne in mind that much shading will injure the colour of the flowers, so that shading should only be adopted whilst the sun is out. The shades should also be arranged in such a manner that the blooms may have air, or removed in the evening; secure them so that the blooms may receive no injury from friction. As soon as the seed is perfectly ripe, gather the pods from all good flowers, or promising sorts. Earwig traps must be looked to regularly, and watering attended to. Look over seedlings, and save none but such as are distinct, and promise to be an improvement on existing flowers. *Evergreens*, cuttings may be put in, commencing early in the month. *Hollyhocks*, gather such seed as is ripe on the early-blooming plants, and cut down the stalks in order to induce the early production of good topped crowns of short shoots before winter. Those plants desired for early blooming next season must be planted towards the end of the month, the ground will therefore require to be trenched, and enriched with manure previously. The Hollyhock flourishes best in a sandy loam, at least two feet deep, on a dry subsoil, with a large proportion of rich manure trenched in with a sprinkling of bone-dust. Seed may be sown immediately it has ripened, in pots or shallow pans; place them in a frame, and when strong enough pot off. Cut down flower-stems when the bloom is spent. *Lilium lancifolium*, when in flower discontinue the supply of liquid manure, and as the bloom declines, withhold water entirely; similar treatment applies to the tribe. *Pansy*, plant another bed, which, surviving the winter, will begin to bloom by the first week in April, and continue to midsummer. Put in cuttings in a border with a north aspect; or if in pots, where they can be kept shady. Sow seeds of first-rate flowers. *Pinks*, should all be planted; look over beds, and see that they are clear of weeds; transplant pipings. *Polyanthuses*, keep the stems earthed up in beds or borders; those in pots may have the same treatment as Auriculas. *Ra-*

nunculuses, see last month's instructions, which may still be carried out, for preparing beds; sow seed. *Rocket, double*, separate offsets from the parent plant, pot them off into sixties, and place in a frame, to have them established before winter sets in. *Roses*, cut the ligatures as soon as the buds begin to swell, *behind* the bud, but leave the bast on, which will protect them, in some measure, from the sun; at the end of the month remove it entirely. *Perpetuals* may be budded to the end of the month. Cut out pods from all plants that have done blooming; secure plants to stakes, and fork over the beds in the rosarium, adding some good old manure. *Scillas*, plant. *Stocks, intermediate*, early in the month pot off seedlings sown in July, into sixties, using light sandy loam; here they may remain till next month. *Tigridias*, take up bulbs towards the close of the month. *Trees and Shrubs*, from the middle of this month to the middle of November is decidedly the best time to remove them, not merely because of a rest in their growth at this period, but as fresh fibrous roots will be formed before the severe weather sets in, which will greatly assist a renewed and vigorous growth. Whenever the leaves of recently planted evergreens dry up and remain on the plant, its early death is pretty certain to ensue, but if the leaves fall off soon after planting, and the bark keeps plump and green inside, the plant will grow. If the weather be dry, sprinkle the branches over with water in the evening, and it will promote the early pushing of shoots. When planted in clumps or shrubbery borders, let them be placed from three to six feet apart, according to the growth of the species, the taller varieties at the back, and those of dwarf habit in front. The holes should be made large enough to receive the roots without crowding them, and of sufficient depth. The soil at the bottom should be well loosened before putting in the plant; prune all straggling roots and branches, and cut out such as are damaged or dead. Place the plant in the hole, gently shaking it as the soil is thrown in (well broken), so that it may insinuate itself among the fibres and roots. Tread the soil about the plant, and give it sufficient water to penetrate to the roots. *Tulips*, look over the bulbs, and keep them in good condition. *Verbenas*, last month's directions may be attended to still. *Violets*, pot and plant. *Yuccas*, when showing bloom should have an abundance of water.

IN THE GREENHOUSE, COLD PIT, AND FRAME.

General Operations.—*Air*, give plenty both night and day, unless the weather be very unfavourable. *Ashes*, spread a tolerably thick layer over the floor of the cold pit, whereon to stand the plants that will be introduced to pass the winter. *Cuttings*, may yet be put in. *Flues and Pipes*, repair and clean. *Glass*, wash and repair any broken squares. *Pots*, wash and cleanse before taking plants into the pits or houses. *Propagate* all kinds of half-hardy plants, as *Calceolarias*, *Petunias*, *Verbenas*, *Salvias*, *Geraniums*, etc., either in pots or shady borders. *Seedlings*, as soon as they are large enough, prick out. *Plants*, may be taken into the greenhouse by the end of the month. *Water*, give liberally to such things as are growing freely, or intended for winter flowering. Keep the greenhouse and pits clean and free from vermin of all sorts.

Cultural Department in the Cold Pit and Frame.—*Alpines*, about the end of the month it is well to place the more rare and delicate species in their winter quarters, a cold pit being the most suitable place, plunged in ashes; covering may be kept off unless the nights be frosty. Seedlings may be pricked out into pans to strengthen them for the winter. *Annuals*, as *Schizanthus*, *Nemophila*, *Collinsia*, *Clarkia*, etc., may be sown for early spring blooming, about the end of the month. *Bulbs*, those intended for early blooming, as *Narcissuses*, *Hyacinths*, *Tulips*, and *Erodiums*, *Lachenalias*, etc., should be potted and placed in gentle heat. *Cinerarias*, sow for late blooming, and prick off seedlings. *Cobæa*, etc., pot off separately the cuttings into sixties, and return them to the cool frame, where they are to be treated throughout the winter as other tender plants. The plants raised from cuttings grow more profusely, and are larger to turn out in May than those raised from seed. *Fuchsias*, put in cuttings; *Bedding varieties*, take off a quantity of young shoots, cutting them close to the old wood; strike in forty-eight sized pots, in silver sand, well drained, and place in heat. The following species are well adapted for bedding purposes:—*Gracilis*, *tenella*, *virgata coccinea*, *globosa*, *microphylla*, *and thymifolia*. *Hyacinths for forcing*, pot in a compost made of equal parts two year old cow-dung, sand, and well-rotted leaf mould; chop the whole together, and do not sift it; allow the bulb to be about half buried in the mould, and place the pots in a box-frame, covering over with sawdust, so as to fill up the frame. If a frame be not to spare for the purpose, dig a pit sufficiently large to contain the number of pots, and about one and a half, or two feet deep, covering the pots and filling it up with sawdust in like manner; the soil taken up may be drawn round the mouth as a ridge. *Mignonette for winter*, shift, stop in and water freely. Sow seed. *Mimuluses*, when out of flower, give them less water until it is withheld altogether, and put them aside in a cool frame until they begin to push in the spring. *Violets, Neapolitan*, take up and pot in thirty-twos, in a mixture of vegetable mould, dung, and loam, with the addition of a little coarse river-sand. Place a handful of broken crocks at the bottom, water them, and plunge in ashes in a frame where they may be within a few inches of the glass; draw off the lights in all fine weather. They require protection from rain and too much damp.

CULTURAL DEPARTMENT IN THE GREENHOUSE.—*Azaleas*, by the end of the month bring them into the house. *Camellias*, sponge their leaves, top-dress the soil, and bring into the house with the other hard-wooded plants towards the end of the month. *Chrysanthemums, specimens*, thin out the flower-buds, leaving two or three only for blooming, and give a supply of liquid manure occasionally. *Cinerarias*, shift for winter bloom. *Epacrises*, *Ericas*, and similar plants may be housed by the middle of the month, especially if showing bloom. *Myrtles* may be propagated by cuttings. *Pelargoniums*, bring into the house any left out of doors; exposure to sudden rains this month leads to spot on the leaf; keep clear of green-fly, and give water in moderation; shift and stop cuttings, if not done before. *Salvias*, propagate, and shift to have established by winter; cut round the roots of large plants in the border ready for bringing into the house; this direction will also apply to other plants requiring shelter, and serves to prevent their receiving a sudden check when the time arrives for transferring them from the open air to shelter. *Succulents*, these will require but little water. *Tropæolums*, the *tuberous* ones require potting as they show signs of vegetating, give free drainage, and but little water at first, until they are well rooted.

IN THE STOVE.

GENERAL OPERATIONS.—*Air*, as last month. *Cuttings*, pot off as soon as possible to have the plants well established before winter. *Composts*, prepare and turn over occasionally, keep the heaps clear of weeds, and if possible preserve them in a dry place or under shelter. *Decayed leaves*, as these will begin to be increasing in numbers, look out for, and remove them as soon as detected. *Insects*, destroy. *Shade*, may be gradually withheld from most plants. *Stove Plants*, in frames or pits will require matting up towards the end of the month, at nights. *Top-dress* and *tie up*, occasionally. *Water* may be given in reduced quantity to all plants out of bloom, or not coming into flower; use the sponge to all large foliage.

CULTURAL DEPARTMENT.—*Achimenes*, as they go out of bloom, place the pots on their sides in a dry, cold pit; plants of *A. picta* for winter bloom continue to encourage. *Climbers*, prune in freely, and tie up to the rafters; those in pots may be turned out of doors for a time, but brought in towards the end of the month; whilst out of doors, give the leaves a good syringing to clear of any red-spider or other pests. *Dendrobiums* and *Epidendrums*, a lower temperature suits them; see last month's instructions. *Gesnerias* and *Gloxinias*, out of bloom, withhold water gradually, and place in a cool dry pit. *Lælias*, will now require plenty of water as they are forming blooming spikes. *Winter-flowering plants*, will be benefited by having all possible encouragement to produce fine bloom.

QUESTIONS, ANSWERS, AND REMARKS.

BLUE HYDRANGEA.—I should be glad to learn, through the medium of your useful work, the true cause, if known, of the pink flowers of the Hydrangea turning blue? I have seen some plants possess this tint of a very decided character, and have myself adopted several plans for producing it, and have frequently failed.—*Ludovicus.*

[Sometimes the Hydrangea will come blue without putting you to the trouble of experimenting for that purpose; it appears to take the blue tinge more readily at some times than others. It frequently happens that no care, or recipe, has the desired effect on it, and the flowers remain pink in spite of all you can do to turn them blue. Solutions of alum, iron, carbonate of soda, peat-ashes, and common salt have each their advocates, and all succeed—sometimes. Water in which tan has been steeped has been recommended strongly, but this we have never tried. It is generally allowed that the fine yellow loam found on Wimbledon Common, Hampstead Heath, and at Stanmore is certain to produce the effect; as also the peat found in the Scotch bogs, as well as near Berlin and St. Petersburg; but these soils are frequently out of the reach of cultivators unless in the respective localities. The Hydrangea is sometimes turned blue by being planted in fresh loam, and at other times peat. Perhaps some of our correspondents may have something to reply on this subject in an early number. The finest blue Hydrangeas we ever saw were in the gardens of the Duke of Devonshire at Chiswick, where they flowered beautifully last year.—ED.]

TRITONIA AUREA.—When should I sow seed of this beautiful bulb, and what subsequent treatment is necessary to the young bulbs? A reply will oblige.—*Maria, a Constant Reader.*

[Sow the seed in November, and place in a gentle heat, the young blades will make their appearance in the space of about six weeks; when they are a couple of inches high take them into a warm greenhouse, where they should have air. In March divide the ball of earth, disturbing the young plants as little as possible, and repot them. They will flower in September following.—ED.]

SHRUBS FOR A TOWN GARDEN.—What shrubs may I plant in my small suburban garden? I have not much room, but desire to plant a few select kinds, both deciduous and evergreen. If any reader, or yourself, Mr. Editor, would assist me so far as to give me a list of suitable things, it will oblige—*A Reader in the South.*

[In compliance with our correspondent's wish, we annex the names of a few shrubs which may prosper with him, and are too seldom met with in gardens of limited dimensions, from which he may select according to taste. *Deciduous:* Amygdalus nana, var. flore pleno; Cytisus, most of the genus—when wrought as standards they look well on a lawn; Cydonia Japonica, this makes a fine hedge, or may cover a dwarf-wall. Robinia hispida; Genista, any kinds wrought as standards; Magnolia conspicua, for a wall; Ribes, most of the genus; Spiræa Douglassii; Syringa Emodi; Weigelia rosea; Andromeda, any kinds; Forsythia viridissima; Azalea, many fine hybrids. *Evergreens:* Cerasus ilicifolia; Euonymus Japonicus; Ilex aquifolium, several varieties; I. latifolia; Benthamia fragifera; Berberis, many evergreen species; Buxus balearica; Cistus, most of the genus; Cotoneaster microphylla, trained on a wall, or as standards; Daphne, any of the hardy species; Escallonia macrantha; Fabiana imbricata, for a wall; Garrya elliptica; Philyreas; Mahonias; Arbutus; Yuccas; Rhododendrons, a host of very handsome kinds; Kalmias; Ledums; and Hardy Heaths.—ED.]

PLANTS AND ANIMALS.—The amount of the dependence of animal life upon the disengagement of oxygen gas by plants may be estimated by supposing existing vegetation to cease evolving free oxygen, or (which would come to the same thing) by supposing some new operation in the organic world to absorb this element as fast as it is given to the air by plants. How soon would the diminution of the oxygen of the air be felt, even by the higher classes of animals? Making the needful calculations, M. Dumas has answered this question by assuming that the unbalanced action of the whole animal kingdom for a century would not consume more than 1-8000th part by weight of the oxygen of the atmosphere, "a quantity altogether inappreciable to the most delicate means of investigation we possess at the present day, and which certainly would have no influence on the life of animals;"—that, as respects the higher races of animals, "it would require no less than 10,000 years before all the men on the face of the globe could produce an effect which should be sensible to *Volta's eudiometer*, even supposing vegetable life to be extinct during the whole of this time," so vast is the original stock of this important element of the atmosphere. Surely, then, we ought not to call this remotely needful action upon the air the essential office of vegetables in the economy of the world, nor view as a subordinate or concomitant end that operation of organizing matters which provides the whole animal creation with sustenance, and the failure of which for a single year would depopulate the earth. Nor should we call that the essential office of vegetation, which certainly was not essential (as the other was) to the existence of an abundant animal life before and during the epoch of the coal formation, and which (however propitious) has not been proved to be necessary even to the existence of man. Of course there is no question here of this as a function of vegetation, and of the reciprocal action of the two kinds of organized beings upon the air, as maintaining the balance of its elements; but even here it is not always considered that, as Sir Boyle Roche once said, "the reciprocity is all on one side;" that though the animal kingdom could not exist at all without the vegetable, yet the vegetable kingdom might very well exist and flourish without the animal. In other words, the vegetable creation is a provision for the animal,—immediately and continually essential, in one respect; remotely and contingently needful, possibly essential to its well-being, but not to its being,—in the other.—*Edin. New Philos. Journal.*

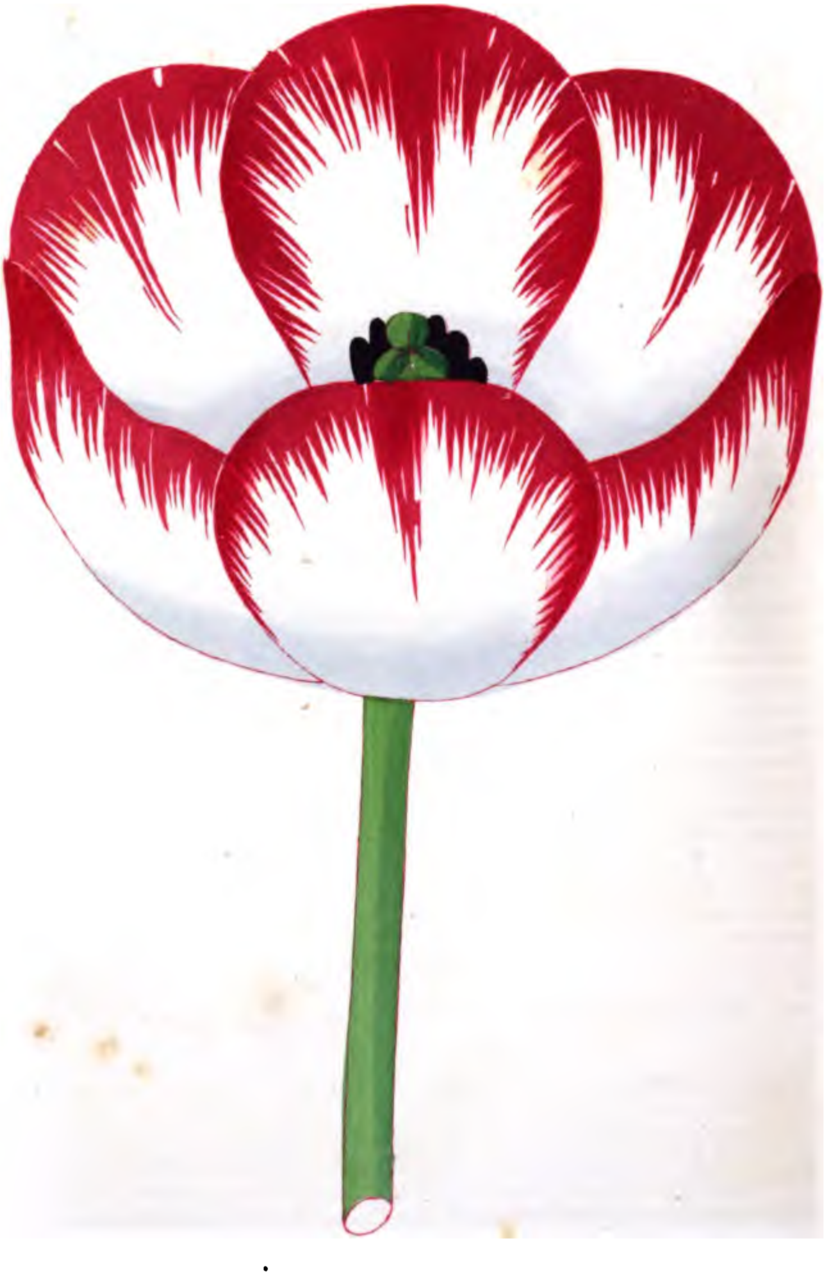
Out-of-door Succulents.—Of the various groups of plants, there are perhaps few more deserving of notice than hardy succulents, inasmuch as they may be grown with success by every one. They are plants which require very little attention, so tenacious of life are they that many of them will flourish in situations where few other plants will live, except Mosses and Lichens, rocks and exposed places being the situations in which they are generally found. Sedum acre, one of the most common Stonecrops, is often met with occuping the sill of the cottager's window in pots, growing, and flowering profusely. The common Houseleek is universally known to grow on the roofs of houses, and tops of walls, and is generally passed by unnoticed; but if the flowers be examined minutely they will be found to be no less beautiful than they are curious in their structure. For artificial rockwork, we have no other plants that will survive during summer in the crevices and hollows of stones, to give them a lively appearance. As regards the delicate species, the main thing to observe is, that they shall be placed close to a stone or brick, in such a way as to be shaded by it from, at least, the noonday sun; it is true that the branches and leaves may soon grow beyond the shadow, but that is unimportant so long as the roots are moist. Wherever plants are so excitable as to push very early in the spring, the north side of the whole mass of rockwork should be selected for them, unless they are as hardy as Primroses and Violets. When a particular kind of soil is required, it should be provided by enclosing a space with bricks, hidden below the surface; by this means plants requiring peat, loam, clay, chalk, etc., may be made to flourish side by side. If little marsh plants are also desired, a proper place may be made for them on the north side of the general mass by sinking a hollow, puddling it, filling it with bog-earth, and shading it by superincumbent masonry. In this way charming little things like Parnassia, Anagallis tenella, Menyanthes, Drosera, Pinguicula, and Samolus may be grown within a few yards of the fragrant herbage from Dover cliffs. As to the plants to be thus employed it is useless to give a list, because, after all, the power of cultivating particular plants will depend on climate. Rockwork plants will thrive in all their wild luxuriance in Worcestershire, Hereford, and the West, which no art can keep in beauty in Middlesex and Kent. The only way of proceeding is to try experiments, to consult the intelligent nurserymen of the neighbourhood, and to observe what thrives in their care. Every dealer can furnish a list of plants suitable for rockwork, and give instructions which possess local value. In managing the plants after they are selected, the main object is to prevent their overrunning each other; for in rockwork, as well as in other associations, the strong are often inclined to bear down the weak. No prettier spring things can be found for rockwork than *Aubrietia*, *Arabis*, *Alpina*, and some of the *Alyssums*; nor any summer plants more useful than some of the broad-leafed Sedums, and the Ivy-leafed Toad-Flax; but they are encroaching neighbours unless attended to incessantly.—*D. K.*

Rose Insects.—I made a discovery a short time ago which, I think, may be of service to some of your readers who grow Roses extensively. I have long kept my Rose trees quite clear of green-fly and spring vermin by using a mixture composed of the following:—To twelve gallons of cold water add one bushel of soot, and half a peck of unslacked lime; stir and mix. Allow it to stand for twenty-four hours, in which time the soot will have risen to the surface; skim it off. It may be afterwards used several times. Syringe the Roses with the liquid from a hand-syringe or a garden-engine. But though this mixture is perfectly efficient during the spring, yet about this time of the year an enemy appears on whom it has no effect. This is a small white grub, with a scaly brown head, the scales of which are of a surprising hardness and strength. It destroys the fleshy part of the leaves, leaving them skeletons of fibres, not unlike fine lace. Though curious, these destroyed leaves are in a mass unsightly. I need hardly add that this premature destruction of the leaves seriously injures the health and strength of the plant. I have till lately been quite unable to get rid of this pest by any other method than the laborious one of picking them off by hand, which, in large collections, is all but impracticable. The lime and soot mixture, tobacco-water, snuff, sulphur, I have all tried in vain. I find, however, that by adding one pound of soft-soap to the twelve gallons of lime and soot water, this grub is effectually and quickly destroyed. The soft-soap should be dissolved in warm water before it is added to the other ingredients.—*William Corvell.*

THE POMEGRANATE will grow in any good garden soil; but for the production either of blossoms or fruit, it should have a rich loamy compost. It should be planted and trained against a wall, of which the south and west aspects are preferable. The plant is propagated by cuttings or layers; the choicer varieties by grafting on the common sort, which causes them to flower better than when growing on their own roots. The varieties are the single red, which is the hardiest; the double red (*rubrum flore-pleno*), and the white (*albescens*), which are more tender; the double white (*albescens flore-pleno*), which is tenderest of all; and the yellow (*flavum*), a very rare kind. The tender varieties require some protection. The double red is the handsomest variety for cultivation, I have grown it many years against my house.—*Bela, Devon.*

NEW CONIFERS.—The rate of growth and actual dimensions of some of the *Coniferous plants* of recent introduction is not one of the least important questions in gardening. Occasionally statements relating to them have appeared in our columns, but they have chiefly concerned species that have been grown for these thirty years. As it would be interesting to know what the facts are regarding others, we place thus prominently what a correspondent, Mr. Butler, of the Widdicombe Nursery, near Bath, says about *Abies Pinsanpo*, of which so much seed has been lately given away by the Horticultural Society. He says that at Fairfield, the seat of E. D. Pontifex, Esq., is a specimen 12 feet 6 inches high, and 10 feet 6 inches through, and this he believes to be the most perfect specimen ever seen. He will, we are sure, excuse us if we at once negative the statement by mentioning that at Acton Green, near London, there exists a plant, eight years planted, which is faultless in every respect, and which measures 13 feet 6 inches in height, and 9 feet 8 inches through on an average, the specimen being feathered to the ground line. Of another Conifer of remarkable growth, *Cupressus macrocarpa*, two specimens also exist at Acton Green, nine years planted, which are respectively 24 feet high, by 9 feet 6 inches through, and 23 feet 6 inches high, by 7 feet through. And in the same place are a *Cupressus Goviniana*, nine years planted, 12 feet 10 inches high, and 9 feet through, and a *Wellingtonia*, 5 feet high, 3 feet 8 inches through, and 8 inches round the stem. All these have been measured this 1st day of July, 1857. Are finer specimens to be found anywhere in Great Britain?—*Gard. Chron.*

EUPHORBIA SPLENDENS.—This fine old plant is very showy when well flowered, and retains its beauty for a long time if suitably treated. I find the best compost to be fresh loam, well-rotted cow-dung and peat in lumps, in equal proportions, mixed together with a little gritty sand; use a free drainage. To keep it in shape, and induce plenty of bloom, the terminal shoots must be stopped-in; and shifting must be regularly attended to until the plant has attained the desired size, when it may be discontinued, and the Euphorbia will bloom as soon as the pot is filled with roots. A liberal supply of water should be given as it is coming into flower. Cuttings strike freely in sand; and, as soon as rooted, should be transferred to large sixty-sized-pots. It is a really fine plant when in full flower and nicely grown.—*P. M.*



BIJOU.

The Floricultural Cabinet.

OCTOBER, 1857.

ILLUSTRATION.

TULIP:—SCARNELL'S BIJOU.

SCARNELL'S BIJOU is a feathered rose Tulip, possessing many excellent qualities, as fine form and size, great purity of the white, and delicate marking in the feather, as well as good substance in the petal. It is a second-row flower, raised by Mr. Scarnell, of Brixton, and was sent out, in limited quantity, by the late well-known florist Mr. Dixon.

The present month is the best for planting the bulbs, before the fibres or rootlets have begun to push, when all injury to these delicate organs is prevented, which often occurs, however, if it be deferred to a more advanced period. In planting, the most advisable method is to rake the bed level with its boarded sides, set out the bulbs in rows, and then cover them carefully, allowing the soil to be about five inches high in the middle, and sloping it down to about three inches at the sides. This inclination is sufficient to throw off a large quantity of wet during the winter season, and prevents the necessity of screening the bed until the plants have made leaves large enough to retain the moisture that falls on them; in addition to this the bed should be well drained. A descriptive list of some of the best show Tulips will appear in an early number, from the pen of an esteemed correspondent and enthusiastic cultivator of many years standing.

THE CARNATION AND PICOTEE IN WINTER.

BY AN OLD FLORIST.

BEFORE winter arrives it may not be amiss to inform your subscribers how they may winter their Carnations and Picotees without much expense, and keep them in health without incurring such losses in their stocks as too often occur. I am an old cultivator of these, my favourite flowers, and, having tried various plans in the course of my experience, I have given preference to the following:—I choose a suitable place for setting the pots—under a wall facing the north—and lay down flat tiles in rows, on which to stand the pots, setting them pretty closely together. The tiles are to prevent the entrance of worms, and other pests, through the holes of the pots; when the plants are thus arranged, I get a quantity of sifted ashes that is tolerably fine, rejecting the large pieces that do not pass through the sieve, and strew it in among the pots, to within about an inch of the rims; over the whole I place a box-frame, and then fill up all round with more ashes to the same level, making the surface smooth. The ashes preserve the roots from hard frosts, and, in a great measure, from slugs. I do not cover up with lights, but with a protecting material made of calico, done over with linseed-oil and a little white-lead, just enough to make it water-tight; such a covering is better than glass-lights, and on all favourable occasions it is thrown off, to give the plants the benefit of air and light; when put on, however, it admits a considerable quantity of the latter necessary element. In rough weather, rain, hard frost, or snow, I draw the cover over the frame, and find it an excellent protector. When the weather is soft I look over the stock about nine o'clock at night, and see if there be any slugs stirring, which I immediately remove, and, with care and attention, my losses of plants during this trying season of the year are very small indeed; the plan is economical in every way, and when pursued, I am persuaded will save the cultivator many vexations that attend on Carnation growing, and, moreover, is a plan that is capable of being adopted by every one. A north aspect for the frame is the best, if it can be got; but is not essentially necessary to the health of the stock.

LEAVES AND ROOTS, THEIR FUNCTIONS AND STRUCTURE.

BY CLERICUS.

(*Continued from page* 249.)

LET us now turn our attention to the roots of plants. The true roots of plants are *radiculæ*, or *fimbriæ*; the rootlets striking out at all points from the stem and branches which lie under the earth. It is necessary to understand the organization of the rootlets; in my opinion very important organs to the proper growth of plants. If we make a longitudinal section of the rootlet, to the point where it is given off from the root, and continue the section through the branch of the root (the most simple and easy of demonstrations is the carrot), we shall see that, while the outer coat of the root is given off from the external coat of the root, there is a vessel running from the extreme point, or *spongiole*, along the centre of the rootlet, continuing its course entirely through the bark until it meets the ascending vessels through which the sap arises into the plant. The root appears to act to the maturer plant in some measure, and in a similar manner, as the seed-lobes, or cotyledons, to the young plant. The seed-lobes, you are aware, contain an immensity of vegetable matter of the nature of starch, which being converted into dextrine by the peculiar chemical change effected in the process of germination and vegetation by the diastase contained in the germ, and serves for the nourishment of the young plant until its organs are developed as to procure its food elsewhere.

I have made use of the term *diastase.* As that word is not in common use, it may be as well for me briefly to explain it. *Diastase* is a peculiar nitrogenised compound contained in the germ of seeds, which, upon the application of heat, moisture, and atmospheric air, commences a ferment, converting the starch of the seed into a gummy substance called dextrine—the true sap of plants. It is the chemical change which takes place in malting, converting the simple nutriment of the barley into which, on being brewed, affords the nourishing, though intoxicating beverage of ale or porter; or, when distilled, affords ardent spirits. This power, called in chemistry *catalysis,* may be further illustrated by the leaven used in baking, which is known to every good housekeeper, as "a little leaven leaveneth the whole lump."

Now the roots contain an immensity of the proper juices of the plant; nay, the proper juice is here in its most concentrated or insipid state; for, if we examine a plant, we shall find that while its proper juice is mild in the leaves, it is stronger in the twigs and branches—stronger still in the bark of the trunk—but still more concentrated in the root. Now, it is by the combined action of moisture, heat, and oxygen *upon the germ* that the vitality of the plant is excited. Moisture is absorbed, and carbonic acid gas is generated, the *plumula* puts forth its tiny leaves, and the *radicle* elongates, and penetrates the earth. That the oxygen of the atmosphere is the prime mover in this action, which, in this process, is called germination, is abundantly testified by the fact, that seeds will not germinate without its presence, and that the very act of germination is accompanied with the generation of carbonic acid gas. The moisture supplied takes up that portion of the starch which has undergone the chemical change; and a preparation of a seed in this state will show that the duct, or vessel, into which the nourishment enters so prepared, leads directly into the *plumula* or evolving leaves of the young plant. Now a process somewhat similar takes place with the root and rootlets of a plant. To excite vegetation, moisture, heat, and oxygen are required; and vegetation is accompanied with the same act of generating carbonic acid gas. You will bear in mind that the vessel in the centre of the rootlet does not only run the whole length of the rootlet, but penetrates transversely through the bark, and joins the inner or ascending sap vessels. It, therefore, appears that the following process goes on:—The concentrated juice contained in the root is, in the rootlet, subjected to the influence and action of the oxygen of the atmospheric air, and water contained in and permeating the soil. A portion of the moisture is imbibed through the coats of the vessels, and dilutes the juice contained in them; and being forced through the internal coat by *endosmose*, into the internal or ascending vessels, it meets and mixes with the water taken up by the *spongioles*, holding in solution the various alkaline and silicious compounds necessary for the inorganic structure of the plant. This mixture, constituting the true sap, ascends through the force of *endosmose* and capillary attraction, and is thus capable of forming the new leaves, the wood, the flowers, and the fruit of the plants.

Let me explain to those unacquainted with the term, the meaning *endosmose*. It has been long known that no gas, or particular air, can be confined by animal texture; and that if a bladder is filled with any gas it cannot be kept pure for any length of time; that which is within escapes through the coats of the bladder, and that which is without will get in, and *vice versa*, according to fixed and known laws. Now, it has been found that fluids are possessed of similar powers, and governed by similar laws, acting in this manner on membrane of either animal or vegetable structure alike, the lighter fluid forcing itself through the integument, and mixing with, or passing that of greater density; and after water, a gummy solution ranks first in endosmodic power. Now, as the juice of the roots abounds in gum, it follows that water imbibed through the external coat of the rootlet, and diluting the proper juice into their mucilage, the solution is forced by *endosmose* into the inner vessel, and ascends by that force and capillary attraction. It is on this principle we account for the ascent of the sap; and on no other, in my opinion, can the theory of vegetation, the development of the plant, and production of its woody fibre be explained.

(To be concluded in our next.)

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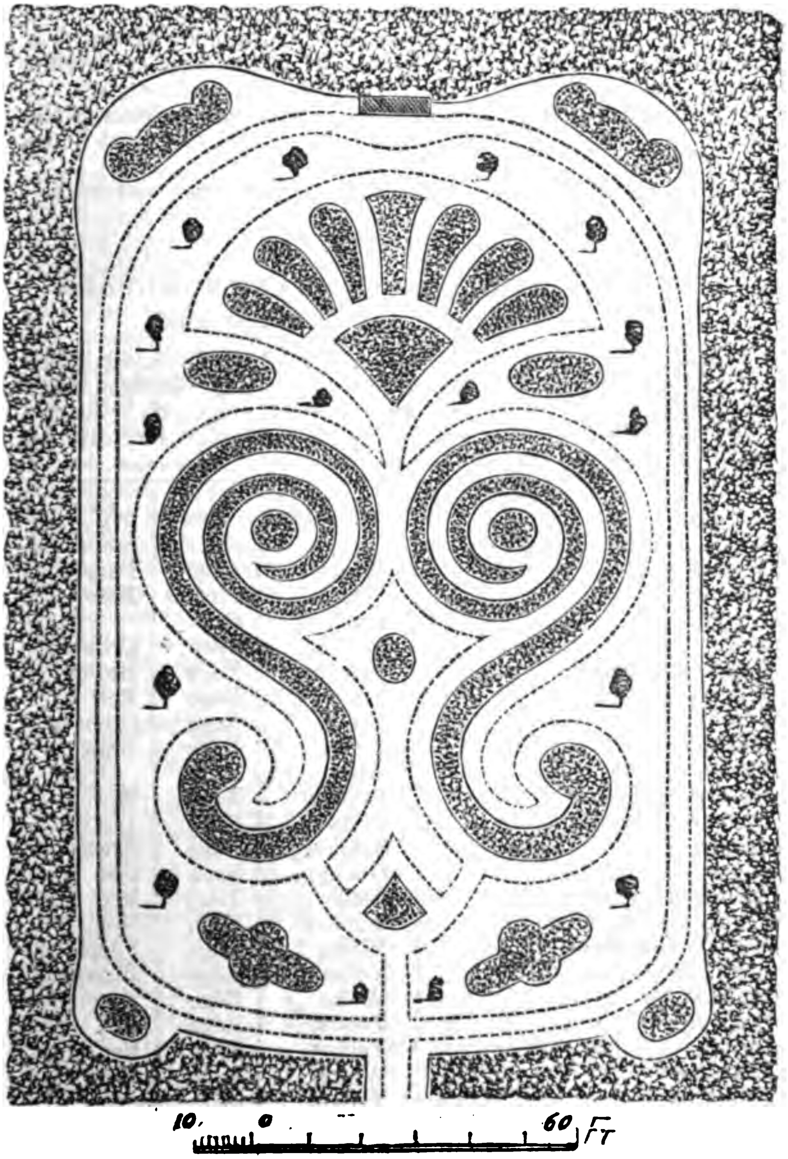
Obituary Notice.—With unfeigned regret we have to record the death of Mr. Archibald Gorrie, a gentleman eminent for his attainments in horticulture and agriculture, and author of several important papers on subjects connected with these sciences. Mr. Gorrie was born at Logie Almond, in Perthshire, in the year 1777, and was apprenticed in the gardens of Logie House, to Mr. Peter Barnet, father of the late Mr. Barnet, who afterwards became Superintendent of the Experimental Garden of the Caledonian Horticultural Society, Edinburgh. From Logie gardens Mr. Gorrie removed to Dupplin Castle, Perthshire, where, under Mr. Miller, in company with Mr. George Don, he studied British botany, which became with him an ardent pursuit. Towards the end of the last century he took charge of the hothouse department in the Leith Walk Nursery, where he made the acquaintance of the late Mr. J. C. Loudon, an intimacy that was maintained until the death of the latter lamented garden author. Mr. Gorrie contributed several papers to the *Gardeners' Magazine*, and to the *Memoirs of the Caledonian Horticultural Society*. For the last fifty years Mr. Gorrie lived as gardener and general factor to the estate of Annat, in the Carse of Gowrie. He reached the advanced age of eighty, and was cut off by an attack of bronchitis, on the 21st of July last, regretted by an extensive circle of friends and correspondents.

DESIGN FOR A FLOWER GARDEN.

BY T. RUTGER, ESQ.



The scrolls in the accompanying design may be devoted to Roses and Dahlias, or to any other arrangement that may be preferred, and the various clumps occupied with flowers in masses; choice dwarf evergreen shrubs should be selected for planting, as indicated, on the grass. The circle between the scrolls is intended for flowers, or a basin, with a fountain, ornamental sun-dial, or any other appropriate structure may be preferred.

If flowers were planted inside the grass verge in front of the shrubbery which surrounds the garden, they would add much to its embellishment.

A garden seat is shown at the extreme end, which may be substituted by an alcove.

A DESCRIPTIVE LIST OF RANUNCULUSES.

BY MR. CAREY TYSO, FLORIST, WALLINGFORD.

AT the request of several persons I send you the names of twenty-four Ranunculuses which distinguished themselves during the past season; a few of them are new, but they are selected on account of their quality rather than their novelty:—

Name.	Ground Colour.	Class.	Colour of Marking.
Meekness	White	Edge	Purple
Melancthon	White	Mottle	Rose
Apollo	Crimson	Self	
Fairy	White	Spot	Crimson
Commodore Napier	Sulphur	Edge	Brown
Delectus	Yellow	Edge	Red
Jane	White	Edge	Crimson
Poliander	Yellow	Edge	Brown
Eliza	Straw	Self	
Sir J. de Græhame	Sulphur	Edge	Red
Marquis of Hereford	Crimson	Self	
Saressa	Sulphur	Edge	Brown
Ninus	Orange	Spot	Red
Archibald Johnston	Yellow	Edge	Red
Prince Albert	Sulphur	Edge	Red
William Bradshaw	White	Edge	Purple
Lord Palmerston	Yellow	Edge	Brown
No Mistake	White	Edge	Purple
Gulliver	Yellow	Edge	Red
Duclou	Yellow	Spot	Red
Examiner	White	Edge	Rose
California	Yellow	Self	
Exhibition	Sulphur	Spot	Crimson
Suaviter	Sulphur	Edge	Red

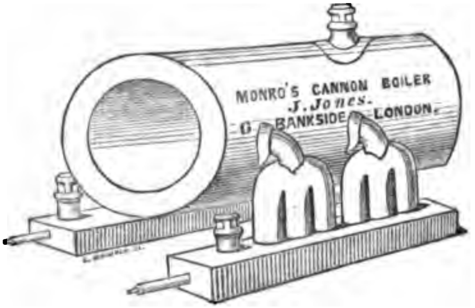
The foregoing have been successfully exhibited one or more times, which is a good evidence of their character. The tubers were in good condition when taken up, and the increase beyond the average.

* * *

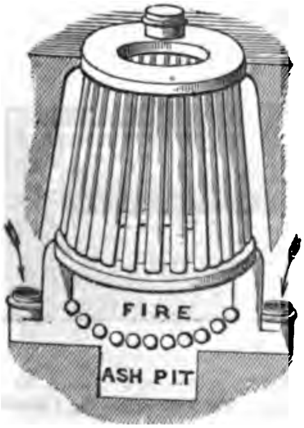
RECENT IMPROVEMENTS IN HORTICULTURAL APPARATUS, IMPLEMENTS, AND MANUFACTURES.

(*Continued from page* 252.)

OF boilers and heating apparatus we have several improved forms to introduce to the notice of our readers, commencing with Mr. Monro's newly invented cannon boiler, made by Mr. J. Jones, of Bankside, Southwark, which possesses several claims to our attention. In the first place they contain but a comparatively small quantity of water, and therefore rapidly communicate heat to a large quantity of pipe; secondly, they are economical in working, as a small amount of fuel is required in getting up a nice temperature, and, after the fire is lighted, little attention is necessary; and its rate of combustion may be regulated to almost any degree. The fire being made inside the boiler, and surrounded on all sides by a thin stratum of water, there is little loss of heat, and the cannon boiler is not liable to get out of order. These boilers, moreover, are economical in their first cost as well as in the setting up. Mr. Jones has only recently made known the invention, but we believe has received numerous applications from gentlemen who are desirous of giving it a trial. Messrs. Weeks and Co., the well-known horticultural builders, of King's-road, Chelsea, have made improvements in their upright pipe boiler, which is a very powerful and durable piece of apparatus; the circulation of water is very rapid, and will, therefore, heat a long range of houses or pits. Messrs. Weeks' heat the whole of their new winter garden,

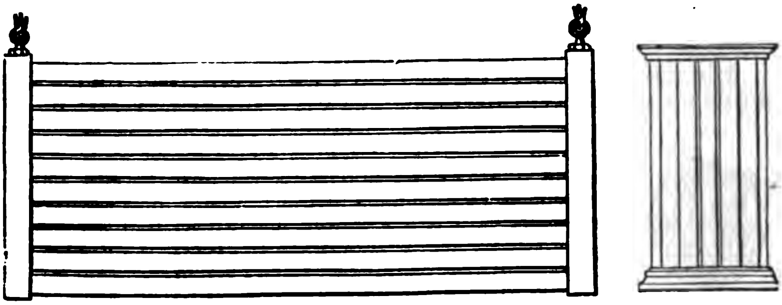

MONRO'S CANNON BOILER
J. Jones.
6 BANKSIDE LONDON.

Monro's Cannon Boiler.



Weeks' Pipe Boiler.

and other erections, by means of one boiler of this construction, measuring about five feet high by three feet across. The peculiarity of this boiler is that it consists almost wholly of a series of pipes, around which the fire plays on all sides, thus no heat is wasted; and, as might be expected, this is another economical form of apparatus. Ornamental stacks of pipes and pedestals for warming conservatories and entrance halls, are also furnished by Messrs. Weeks, constructed on the best principles for economising heat.

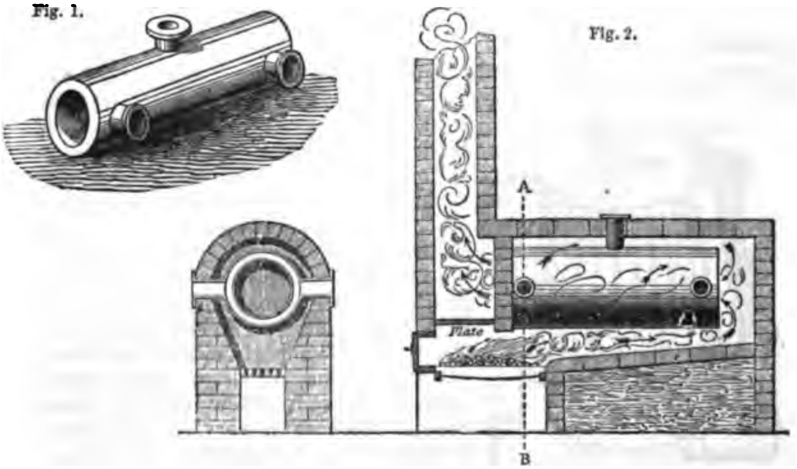


Weeks' Ornamental Stacks of Pipes and Pedestals.

Messrs. Shanks, of Arbroath, have recently brought out a new form of boiler, the invention of Mr. Thomson, of Dalkeith Park, and which they call the retort boiler. Having seen this apparatus in operation, we are enabled to affirm that the performance is in every

Fig. 1.

Fig. 2.



THE RETORT BOILER.

Fig. 1.—The Single Retort Boiler, to heat 1000 feet of 4-inch pipe. Fig. 2 shows how Fig. 1 should be set. C section on A B.

way satisfactory. Messrs. Shanks claim the following advantages as peculiar to this form of boiler:—The exposure of a large surface to the action of the fire, with the smallest possible quantity of water, thereby causing an immediate and rapid circulation; the boiler is constructed purposely for building inside the house; by this plan all the heat radiated from it is economised for heating purposes, and this is so managed as to prevent the escape of smoke or injurious gases; the boiler, or boilers (for there are three united when great lengths of pipe are to be heated), can be swept free from soot in a very short space of time, and thus a saving of fuel is effected with a little attention in this respect; a perforated pipe is so arranged as to throw jets of air into the flame so as to effect a more effectual consumption of smoke. These boilers are already at work in several parts of the country, and have, we believe, afforded complete satisfaction. The fact is evident that we have now several excellent forms of heating apparatus, which at present, at least, do not appear capable of being much improved upon.

Fig. 3.

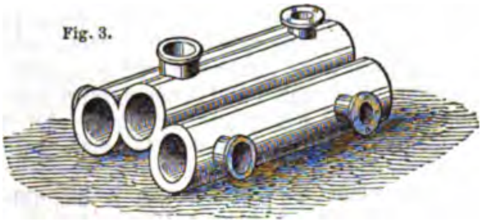


Fig. 4.

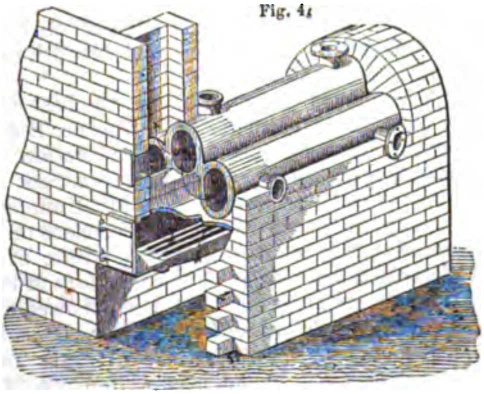


Fig. 3.—The Triple Retort Boiler, to heat 4000 feet of 4-inch pipe. Fig. 4 shows how Fig. 3 should be set for radiating heat from the boiler direct. If placed where that is not required fix as Fig. 2 is shown.

(*To be continued.*)

GRAND FLORAL EXHIBITION, CRYSTAL PALACE.

THE last great exhibition of flowers and fruits at the Crystal Palace, took place on the 9th, 10th, and 11th September, and was well attended, considering the very unfavourable state of the weather that occurred on two out of the three days the exhibition was open. As usual, at the shows held under the auspices of the Crystal Palace Company, there was a large display of flowers as well as of fruit; and we regret that the latter being without the scope of our publication, we are precluded giving a further notice of it. The collections of stove and greenhouse plants were numerous, and generally in fine condition for the season. Variegated and ornamental foliaged plants were also plentiful, as well as Ferns and Lycopods. Of Dahlias there was a great display, with numbers of German Asters, Fuchsias, Liliums, and Balsams.

The only new plant we noticed was a magnificent *Begonia*, exhibited by Messrs. Rollison, named *Rex*, having fine large ornamental leaves, the centre a deep olive-green, surrounded by a broad silvery band, again bordered with a wide edge of olive-green; the length of the leaf was about ten inches, and breadth eight. This will be a fine addition to our stoves.

Of stove and greenhouse plants in bloom, the best collection of six was shown by Mr. Hamp, gardener to J. Thorne, Esq., of South Lambeth, and contained fine specimens of *Ixora coccinea*, *Dipladenia crassinoda*, *Allamanda grandiflora*, *Cyrtoceras reflexum*, and *Erica Eweriana*. The second prize was awarded to Mr. Kaile, gardener to Lord Lovelace; among his plants were good specimens of *Dipladenia crassinoda*, *Allamandas*, the beautiful *Meyenia erecta*, *Clerodendron Kæmpferi*, and *Franciscea acuminata*. The collections of twelve stove and greenhouse plants were all good. Mr. Peed showed excellently-grown specimens of *Allamanda grandiflora*, *Vincas*, *Rondoletias*, *Pleroma elegans*, *Ericas*, and *Cyrtoceras reflexum*. Mr. Taylor had a fine plant of *Pleroma elegans* in bloom, also well-grown *Allamandas*, *Begonias*, etc. Some good groups of *Æschynanthus*, *Hoyas*, *Gardenias*, *Dipladenias*, etc., were shown by other exhibitors in this class.

In the class of variegated and fine foliaged plants there were many exhibitors; Mr. Young, of Denmark Hill, Mr. Morris, gardener to Coles Child, Esq., Mr. Oughbridge, and Mr. Rhodes, among amateurs, showed some of the best collections, while among nurserymen, Messrs. Parker and Williams, Jackson, Cutbush, and Rollinson were principal exhibitors. Of this class the following were grown in fine condition, and formed conspicuous objects:—*Pavetta Borbonica*, with large, handsome, laurel-shaped leaves, beautifully veined and mottled with deep green on a lighter ground, and having a bright scarlet midrib running up the centre; *Maranta pardina*; *Croton discolor*, the upper side of the foliage deep shining green, lower surface crimson; *Begonia picta*, very showy; *Tradescantia zebrina*, with broad longitudinal stripes of dark and light green and sulphur on the upper side, and purple crimson beneath: these were also in bloom, bearing several of their small white flowers. *Coleus pectinatus; Caladium pictum;* the pretty *Sonerila margaritacea; Dioscorea zebrina*, under side dull purple, upper side green, with a silvery midrib; *Hydrangea japonica variegata; Dieffenbachia variegata; Anæctochilus sp.; Solanum variegatum*, pale green, broadly edged with yellow; *Aspidastra lurida*, straw colour, with pale green stripes; *Dracena terminalis*, very ornamental; *Gesneria zebrina; Marantas*, together with many other fine plants. Mr. Cutbush showed a tray of his new *Variegated Petunia*, named *Mrs. Cutbush;* good for bedding purposes. *Achimenes* were in tolerable abundance, and among them we noticed a new hybrid, with large flowers, resembling *coccinea* in everything but size, to which this variety is much superior, it is named *Meteor*. *Japan Lilies* from Mr. Cutbush, and other exhibitors, were much admired. *Fuchsias* were chiefly the old and well-known sorts, tolerably well grown. *Scarlet Pelargoniums* were shown by Mr. Gaines, of Battersea, and Mrs. Conway, of Brompton, being massed together in large numbers, the effect was brilliant, many of the ornamental foliaged and scented ones were greatly admired, and among them were *Lady Plymouth*, *Prince of Orange*, *Rose Scented*, *Helen*, and others. *Cockscombs* were in limited numbers, and tolerably grown. *Balsams* were extremely fine, the blooms large and very double; they consisted chiefly of the Camellia-flowered class. *Orchids* were very limited in number, but such as were shown were good; among them was a charming specimen of *Miltonia spectabilis*, covered with its lovely blossoms, it was flowered by Mr. Keele, gardener to Dr. Butler, of Woolwich; a fine plant of *Vanda suavis*, *Eria leucostachya*,' and *Aerides suavissima*. A group of *Pitcher Plants* from Messrs. Parker and Williams was well grown; this firm grows the *Nepenthes* to perfection, in pots plunged in tan over a chamber in which warm air circulates, entering through a grating in the front wall, and escaping through pipes at top. *Ferns* and *Lycopods* were numerous, chiefly from Messrs. Parker and Williams, Mr. Sim and Mr. Fletcher; all were well grown.

The *Dahlias* were in great strength, there being numerous competitors from all parts of the kingdom. In the class of fifty blooms there were ten groups, the first prize was gained by Mr. Turner, Mr. Keyes obtained the second, Mr. Barnes the third, Mr. Kimberley and Mr. Sealey equal in the fourth. In the twenty-four bloom class for amateurs, the prizes were awarded, 1st, to George Holmes, Esq., Brook Lodge, Norwich; 2nd, the Rev. C. Fellowes, Shottesham; 3rd, Mr. Grant, gardener to R. Fellowes, Esq., Shottesham Park; 4th, Mr. J. C. Perry, Bromwich, near Birmingham. In this class several extra prizes were distributed. Equal prizes were given in fancy varieties to Messrs. Turner and Keynes; 2nd, Mr. Barnes; 3rd, Mr. Legg; the Rev. C. Fellowes, George Barrett, Esq., and Mr. Perry, also were exhibitors, and had fine stands. Of *Dahlias* the blooms were generally excellent, to which the late favourable weather had in some degree contributed, in addition to which the competition was great. The finest blooms were the following:—*Selfs*, Satirist, Touchstone, Lord Palmerston, Rachel Rawlings, Lady Franklin, Cherub, Grand Sultan, Colonel Windham, Lady Popham, Sir R. Whittington, Yellow Beauty, Midnight, Miss Spears, Pandora, Beauty of Slough, Omar Pacha, Lilac King, Bessie, Lollipop, Mr. Seldon, Salvator Rosa, Sir F. Bathurst, Miss Burdett Coutts, Sir C. Napier, Sir J. Franklin, Pre-eminent, Miss Caroline, Lord Bath, Admiral Dundas, Royal Scarlet, Roland, Harbinger, Perfection, Eclipse, Robert Bruce, Deutsche Zierde, Constancy, Princess, and Chance. *Fancies*, Conqueror, Fancy King, Miss Nightingale, Cleopatra, Baron Alderson, Charles Perry, Admiration, Duchess of Kent, Enchantress, Iphigenie, and Butterfly. The following were among the *new varieties*:—Queen (Keyns), creamy blush, spotted and slightly striped with crimson, rather small; Mars (Keyns), scarlet-crimson, not so good as Lord Palmerston; Cynthia (Keyns), creamy canary colour, a neat flower; King (Rawlings), nankeen brown, under side of petal purple, a nice round flower, but petals somewhat too cuppy; Mrs. Boshell, pale blush white, speckled and striped with deep crimson; Mr. Critchett (Keyns), golden amber, a nice flower; Jupiter, maroon tipped with white, somewhat flat; Venus (Rawlings), creamy blush, very good; Mrs. Church (Church), yellow, tinged with amber, a fine flower; Miss Pressly (Turner), blush, tipped with purple, small; General Havelock (Fellows), bright rosy-scarlet, a fine large flower; Marion (Fellows), blush, laced with rosy-purple; Miss Watts (Turner), white, tolerable; Mark Antony (Salter), amber, deeply striped with scarlet-crimson, very distinct and very good; Canary (Fellows), light yellow, a very great flower; Cherub (Holmes), orange-amber, good form; Goldfinder (Turner), deep golden yellow, very large, but second-rate; Flirt (Holmes), nankeen, striped with crimson, but low in the eye; Papilio (Turner), salmon, striped with rosy-crimson, a promising flower; Sir James Watts deep scarlet, very neat; Major Fellows (Grant), very fine, in the way and colour of Mr. Seldon; Village Gem (Green), white laced, with rose tips, neat but small; Invincible, brilliant amber orange, laced with scarlet, distinct in colour and of tolerable form; Marchioness of Aylesbury, blush, laced with rosy-purple, large and good; Tiger, dull red, striped with maroon, distinct in colour, but second-rate only; Mrs. Hamilton, white, laced and striped with rosy purple, small and flat; Lady de Vesci, salmon-buff, tipped with purple, tolerably good; Favourite, blush striped with purple, a loose flower; Gladstone (Keyns), bright orange-scarlet, large and good; Alice Downie, a good white; Mrs. Seacoal, bronzy orange, striped with deep crimson, flat and second-rate.

There were several trays of cut *Roses*, principally from Messrs. Epps, Francis, Mitchell, Paul, and Cutbush, and of *Asters* there were forty-five trays of twenty-four blooms, remarkable for size and good form; they attracted great admiration, especially from the ladies.

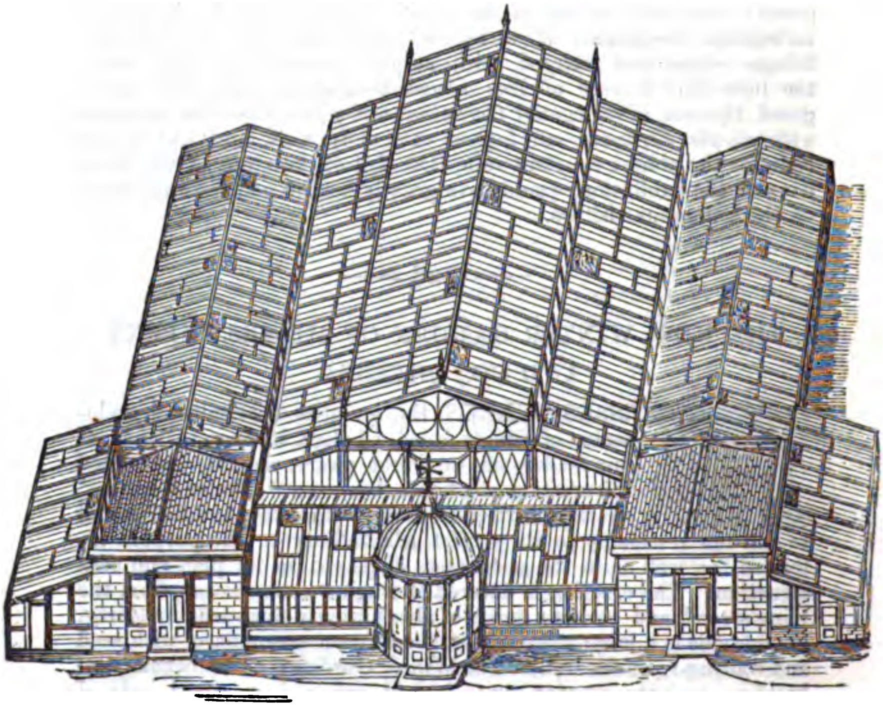
The Water Lilies, plants, and shrubs in the Crystal Palace are doing extremely well, and everything is kept in first-rate order, worthy of this splendid establishment. The *Wellingtonia gigantea* lately put up here, together with the young specimens, drawings, and photographs of it, give us an idea of its magnificence in its native forests, and is viewed with wonder by all who behold it. The grounds and beds were, notwithstanding the advanced period of the season, looking gay, with *Scarlet Geraniums*, *Shrubby Calceolarias*, *Dahlias*, pegged down, etc. It is worth a visit to the Crystal Palace were it merely to see the style in which the bedding plants are disposed; some beds of mixed *Asters*, of *Fuchsia coralina*, edged with variegated *Geraniums*, of variegated *Ageratum* very distinct, the foliage edged and striped with sulphur, contrasting well with the light-blue flowers of *Tom Thumb Geranium*, edged with variegated *Alyssum*, of variegated *Geranium*, and *yellow Calceolarias* edged with *purple Verbenas*—all looked extremely well, and had it not been for the almost constant rain, that fell on two out of the three days of the exhibition, would have greatly heightened the enjoyment of the numerous visitors.

THE NEW WINTER GARDEN OF MESSRS. WEEKS AND CO., CHELSEA.

MESSRS. WEEKS, the eminent horticultural architects, of King's Road, Chelsea, having, as some of our readers are no doubt aware, recently completed the erection of a house, termed a "Winter Garden," we were invited to inspect the same, and feel bound to add our testimony to its perfect adaptability to the purpose intended, as well as to the good taste displayed in its plan and construction. The erection is entered through a conservatory from the King's-road, and covers a space of about twenty-five yards by thirty. On one side is a large stove and on the other a greenhouse, with seed and waiting-rooms in front. The Winter Garden is a very ornamental building, and the interior space is laid out in four raised beds of considerable size, with a circular one in the centre; the latter is now (August 20th) occupied by *Japan Lilies*, with a fine specimen of *Araucaria excelsa* in the middle, and the four corner beds are filled with *Camellias*, *Orange trees*, *Azaleas*, *Fuchsias*, *Humea elegans*, *Agapanthas*, *scarlet and variegated Geraniums*, etc. The beds are each raised a foot or more above the level of the floor, the sides banked up with turf, and edged with *Lycopodium*. The spaces between the beds afford plenty of room for walking about, and the construction of the building is such as to give the whole a light, and remarkably cheerful appearance.

The Winter Garden, together with all the house in this nursery are heated by one boiler, supplying about 7000 feet of pipe, and capable of maintaining any desired amount of heat at a very low cost.

The inspection of Messrs. Weeks' Winter Garden will afford much gratification to every one interested in the progress of Horticulture, as a proof we have but to point out that it has already been visited by a great number of practical gardeners, the principal nurserymen, and many of the nobility and gentry.



Messrs. Weeks' New Winter Garden.

◆

Criterion of the Picotee.—The properties of form are similar to those of the Carnation; but the distinction from the Carnation is that the colour is disposed on the outer edge of the petals and radiates inwards, and the more uniform this is the better, whether it be very deeply feathered at the edge like a feathered Tulip, or an even line not wider than the thickness of the petal.

REVIEWS.

Trentham and its Gardens, with ten Illustrations on wood. London: Piper, Stephenson, and Spence, pp. 80. Price 1*s*.

THIS little work contains an historical account of Trentham, with a description of its ducal house, park, and gardens. We are sorry to see so limited an account of the latter, however, especially where there is so much room for description. In a future edition we hope to see some typographical errors corrected, especially in the names of plants.

The author states, p. 80,

> "The gardens (comprising an area of about sixty-five acres) of this princely establishment have, within the recollection of men still living, undergone a complete change, and especially within the last twenty years. Before that time they do not appear to have excelled in any particular manner the gardens of other large estates, or to have attracted more attention than is usually bestowed upon such establishments by occasional visitors."

The following is our author's description of the grounds:—

> "The Terrace Garden is composed of several raised beds of wrought stone of various forms and treatment. The centre of each of the largest is occupied by large marble vases, and the smaller ones by bronze statues, surrounded by alternate lines of the flower-of-the-day, golden chain, and other Geraniums, Verbenas, Lobelia, etc: The elegant Humea also contributes its graceful outlines to the general effect. In each windows of the lower story of the Hall is a China-covered box with a variety of Geraniums. The pavement is composed of slate, bordered by flag-stones; and a balustrade divides it from the parterre. This garden contains a selection of bronze statuary, consisting of The Wounded Fawn, Mercury, Venus, Atalanta and Hippomenes, etc. Such objects contribute a fine effect to gardens of this description, and with vases, urns, and other works of a classic order, relieve and enrich the general features of picturesque landscape.
>
> "The Private Conservatory opens to this garden. The walls are covered with trellis-work, over which cluster masses of Cobœa scandens and Passion Flower, which descending from the roof in long lines, have a very pretty effect. The borders are also covered with Camellias, Fuchsias, etc., and the ventilation is regulated by ornamental baskets with trailing plants. There are several Orange trees in tubs, and a fine specimen of the Seaforthia elegans. This house, with the corridors connected with it, contains numerous specimens of lichen and ferns. Of the latter the collection is rare, consisting of Pteris tremula, Aspidium molle, Aspidium patens, Polypodium aureum, Davillia, decompositum, Blechnum occidentale, Blechnum coroovodense, Adiantum formosum, etc. There is a small garden between the corridor and the main wall laid out in raised beds with Geranium, Calceolaria, etc.
>
> "The Parterre is about two feet below the level of the Terrace Garden, and the steps leading from it flanked by bronze figures and antique urns. It is about eighty yards square, and divided by broad gravel walks, with stone borders, into large compartments. The inner one is a circle, laid out in small cypher beds, with gravel paths and lines of turf converging to a circular basin containing a fountain—the three graces. This series of beds are arranged and planted with flowers, to represent a peacock's tail. They are surrounded by a small band of Verbenas, of different varieties, and the basin is bordered by groups of the Humea; the effect of the sparkling water falling on this floral circle is, by comparison, very beautiful. There are four large compartments, laid out in numerous beds, the centre being a fine and graceful scroll; and each division is,

in its entire arrangement, a counterpart of the other. The flowers used in their decoration consists principally of Geraniums, Trentham rosy-scarlet, flower-of-the-day, golden chain and other varieties; Verbenas, Lobelias, Roses, Calceolaria, Saponaria, Calabrica, Forget-me-not, Petunias, etc. Each plot is further ornamented with Cypress and Irish Yew, and in the centre of each, on a granite pedestal, stands a fine antique white marble vase. The divisions between the beds were formerly composed of gravel, but a much more effective and refreshing contrast has lately been ensured by laying them down with turf. The outer borders, are of a chain pattern, formed of box edgings laid down with variegated gravel. The small beds, from which rise at regular intervals, a Cypress, are planted with flowers of a similar character to the other parts of the garden. The east and west sides are bounded by a low wall, the north and south by balustrades, and in the four angles are the Conservatory, Dining-room, and two Italian temples, containing mythological statues. The whole of the balustrades are ornamented by lines of vases, with flowers, chiefly Geraniums. Wherever a recess, or a point favourable for floral display, or the introduction of objects of art, presents itself, it is not neglected; but there is no wholesale grouping, no gaudy pretension, to be seen. If the eye rests upon any individual object, or ranges over the whole area, it is struck with nothing repulsive to good taste; everywhere it is harmonious, glowing, and beautiful. In the winter time some of the beds are planted with dwarf evergreens, such as Rhododendrons, Ericas, Menziesias, etc.; and when the first genial beams of a spring morning fall across it—sometimes even through a thick crust of snow, every bed welcomes its hopeful ray with the first pure offerings of the floral world—the Snowdrop and Crocus.

"Between the Parterre and the Park are masses of shrubbery, consisting of Holly, various of the Coniferæ family, Rhododendrons of several colours, Azalea, Thorns, etc.; and the Hollies and Thorns, with others, are in many instances covered with Honeysuckle, wild Roses, and Clematis, which impart a very fine and pretty effect to the different groups. Numerous grassy glades run here and there, and form a succession of very interesting walks, the borders being planted with heaths, and enlivened by a great variety of native flowers. The terrace fronting the private apartments is reached by some ranges of steps on which stand several ornamental baskets with flowers, and it is further embellished by two large antique bronze vases. In front of the orangery ornamented by an iron gilt railing, is another garden, with a Cupid fountain in the centre, and planted in a simple, but very effective manner. Stretching towards the lake are some beautiful glades beneath large trees, in some instances crossed by a serpentine border of Forget-me-not, intended to represent a rivulet. This happy idea—so simple, yet so natural-looking—is due to the Duchess of Sutherland, and was first realized some years ago at Lilleshall, in Shropshire. The surface of these glades is broken here and there by gentle undulations, and intersected by beds of the simple Periwinkle, from which rise some fine specimens of the Araucaria imbricata. There is also a beautiful tree, the Magnolia tripetala, and some thorns decked in the borrowed plumes of wild Roses. Some ancient forest trees contribute to the interest of the scene.

"The steps leading from the Parterre to the Italian Gardens are very fine; 'their form is bow-like, the edge of stone, and the space between each, which gradually descends and is composed of gravel, varies from five to seven feet. They are six in number, and have a stately appearance.' The Italian Gardens are universally admired for their descriptive beauty, and the excellent arrangement of the materials of which they are composed. They occupy about ten acres, and are divided into large compartments by broad gravel walks. The central one is about 250 yards long, and 14 wide; and down its entire length and the parallel walks on each side of it range well-kept lines of Portugal Laurel in large tubs, and trained so as to represent Orange trees. There are also in the centre of each of the six compartments fountains of a simple character, the large ones throwing a single jet of water upwards of twenty-five feet. The excavations are well kept, the turf being of a mossy and rich character.

"The borders of each of the beds, which are planted with the greatest regard to harmony both in height and colour, are formed of yew, barberry, dwarf oak, etc. The walks are kept free from weeds, and made solid and clear-looking by being well dressed each spring with boiling water and salt—a machine invented by Mr. Fleming being used for that purpose. The whole of the turf, where it is possible to be got at, is kept in order by a mowing-machine drawn by one horse, which cuts and collects the grass at the same time. It is a capital instrument, and of the greatest utility where there is such a large surface of turf to be mown. The east and west sides of the gardens are raised into a terrace, on which stand several Maltese vases and polished granite seats. Down the trellis-walk on the east are placed on terms allegorical busts of the four seasons; and between them a range of ornamented baskets surmounted by a zinc band painted green, which forms a capital contrast to the white baskets and the foliage of the flower-of-the-day Geranium with which they are decorated, and is further serviceable by allowing more soil to the roots. The beds running the entire length of the trellis-walk, are planted with gay, flowering plants of the usual order, and presents a glowing and rich appearance against the foliage of the climbers that rise from amongst them.

" The trellis-walk was erected in the year 1843. ' It is composed of iron, 140 yards long and about 16 feet high, over which clusters of Roses, Woodbine, Clematis, Ivy, the fine foliage of the Aristolochia sipho, and numerous other flowering plants and creepers luxuriate. Standing at the southern end, the view from it is most charming, and well adapted for artistic treatment, embracing portions of the park, wood, lake, and islands, with the bay and its groups of beech and horse-chesnut. Each end of the walk contains three entrances, and is raised much higher than the other part; and down each side are oval windows.'

" ' At the extremity of the central walk of the Italian Gardens, abutting on the lake, and on a stone pedestal surrounded by four smaller ones, at present unoccupied, stands a remarkably fine colossal bronze cast of Perseus and Medusa. This is the only bronze copy of the original extant, and as a work of art its value is great. The work displays great power and truthfulness of expression. Perseus, flushed with triumph, is represented holding the head of Medusa by its snaky locks the moment after decapitation, and surveying in his shield the reflection of that fatal face on which he dared not rest his naked eye.' "

The Common Objects of the Sea Shore. By the Rev. J. G. Wood, M.A., F.L.S., etc., 12mo, pp. 132. London: Routledge & Co. Price 1*s.* plain, 3*s.* 6*d.* coloured.

Another neat little work on marine subjects and aquariums has been forwarded to us for review. It is simply a popular account of " The Common Objects of the Sea Shore," and restricted to those objects which every visitor to the sea-side is sure to find on every coast. The book is written in a very plain and entertaining style, and its illustrations (by Mr. Sowerby) are very truthful.

Visitors to the sea-side, who are fond of sea-weeds and the natural history of the domains of salt water, should buy this little work as a coast companion, and they will be certain of reaping a harvest of solid information that will repay them a hundredfold for the outlay. Aquarians should also add the work to their library, by all means. Having but recently noticed other works of this class, we do not feel at liberty to give extracts as a specimen of the work, lest we should be taking up too large a space with this subject, however interesting it may be.

Four Lectures on Farmyard Manure, Artificial Manures, Barren and Fertile Soils, etc. By Dr. Augustus Voelcker, F.C.S., etc., etc. London: Ridgway, pp. 72. Price 1*s.* 6*d.*

Under the above title we have much valuable information on a subject of the greatest importance—the chemistry of soils and manures, from the pen of one of the most able agricultural chemists and analysists of our day;—a work that should be in the hands of every person interested in the subject, and gardeners are especially so. The book will well repay perusal, and we regret we have not space to transfer some of its more important remarks to our pages.

NOTES ON NEW AND SELECT PLANTS.

VIOLA PEDUNCULATA. *Nat. Ord. Violarieæ.*—Mr. Douglas, the eminent though ill-fated botanical collector, was the first to discover this pretty violet, in California, only a short period before the occurrence of the fatal accident which led to his death in the Sandwich Islands. It has subsequently been re-discovered by Mr. Lobb, who forwarded seeds, and dried specimens, to Messrs. Veitch; plants were shown by the latter at the Horticultural Society's late exhibition, and excited marked interest. It requires the protection of a frame, and flowers in May; the blossoms are a rich golden yellow, from an inch to an inch and a half across; the three lower petals marked with small red streaks around the eye; the upper ones have a large blotch of the same tint at the *back* of the petals, the front surface being of an uniform golden tint; the foot-stalks are from six to ten inches long, and the plant rather compact in habit. (*Bot. Mag.*, 5004.)

104. RHODODENDRON CALOPHYLLUM. Nat. Ord. *Ericaceæ.*—The heads of bloom are close, and the flowers white, with rather pointed petals; this species is not remarkable for the size of its flowers, and possesses the habit of sending out shoots from the corymbs of blossoms, which detracts considerably from its other good qualities. It is a native of Bhotan, whence seeds were transmitted by Mr. Booth, to Mr. Nuttall, of Nutgrove, Rainhill, with whom, as also at Kew, it flowered in May of the present year. (*Bot. Mag.*, 5002.)

105. DENDROBIUM NOBILE; *var.* PALLIDIFLORUM. Nat. Ord. *Orchidaceæ.*—A pale variety of the well-known, handsome, *D. nobile*, to which the present is very inferior, being destitute of the rich spot on the labellum in the species alluded to. In size, and some other particulars, the flowers closely resemble each other. (*Bot. Mag.*, 5003.)

106. AZALEA OCCIDENTALIS. Nat. Ord. *Ericaceæ.*—The present is the only one of this genus that has, up to the present time, been detected westwards of the Rocky Mountains in North America, and is an inhabitant of California; dried specimens from Messrs. Douglas and Hartweg were received some years ago, and, in the absence of living plants, it was considered to be identical with *A. calendulacea*, from which, however, it is now seen to differ, more especially in

colour. The blossoms are white, with a yellowish streak in the upper petals, and a few tinges of red on their outer surface; in the heads of bloom, and form of flowers, it bears a resemblance to the Ghent Azaleas. Messrs. Veitch possess plants that were raised from seed sent by Mr. Wm. Lobb, which have bloomed in their nursery. (*Bot. Mag.*, 5005.)

107. Agave densiflora. Nat. Ord. *Amaryllideæ.*—Two unnamed Agaves have bloomed during the present year in the succulent house at Kew, but when and from whence received is uncertain, but supposed to be from Mexico. One of these has been named by Sir Wm. Hooker *A. densiflora*, and does not appear to have been described before by any author. The scape bearing the flowers grows six feet high, and is an inch thick, surmounted with a dense head of blossoms, pale green, changing to yellow, furnished with stamens and pistils of a rich purple colour, the whole making a singular appearance; the leaves are large, thick, and fleshy, slightly spinose at the margin, and of a deep green, but not glaucous. (*Bot. Mag.*, 5006.)

108. Grevillea alpestris. Nat. Ord. *Proteaceæ.*—From the mountainous districts of South Australia, where it grows as a large shrub; with us it is a plant of small size, but bears its pretty blossoms of red and yellow in great profusion. While in its native localities it flowers throughout the year. It requires greenhouse cultivation, and is worthy a place in every collection. (*Bot. Mag.*, 5007.)

* * *

NEW AND SELECT GARDEN HYBRIDS.

HOLLYHOCK, Queen of the Whites (Paul's)—One of the finest whites we ever saw. The flower is perfect in form, of extra size, and the spikes closely set with blooms, long and broad. This is really a white Hollyhock, being entirely free from all stains of green or sulphur. Messrs. Paul, of Cheshunt, have raised some flowers of first-rate merit, and this appears to be equal, or superior to any.

73. H. Primrose Perfection (Paul's).—Colour delicate primrose-yellow; form excellent, and spikes fine. A very distinct show flower.

74. H. Avalanche (Paul's).—This is another pure white flower, but the petals are not sufficiently smooth enough to make it a first-class bloom for exhibition, although it is a fine variety for the border, bearing immense spikes of bloom.

75. H. Village Maid (Paul's).—Raised from "Beauty of Cheshunt," which it resembles in size and form; colour crimson-peach. An excellent show flower.

76. H. Nebulum (Paul's).—A useful smooth flower; chocolate, or purple blush; veined.

77. Picotee, Ada Mary (Smith's).—Mr. W. Smith, jun., of

Alpine Cottage, Darlington, has originated some first-class Picotees, of which this is one. Ada Mary is a light-edged red; the petals smooth, and of great substance; the marking well confined to the margin; the white is as pure as Marris's Prince of Wales, and without a single speck; the marginal colour crimson-red.

78. P. Lauretta (Smith's).—A medium edged red, similar to Mrs. Norman; the petals very smooth, of fine substance, very pure, and free from spots; the colour well confined to the margin; the first blooms are sufficiently heavy to compete in the Heavy Red class, the laterals somewhat lighter in the marking. Lauretta is exceedingly constant, and of unexceptional habit.

80. P. Eva (Smith's). This is a seedling from Venus, crossed with Mrs. Barnard. Like the former, it is a delicate sulphur when it first opens, but soon becomes very pure; the back petals large and deep. Eva is a light-edged rose, of good substance, smooth, and, like each of the above, the colour is well confined to the margin, and in tint resembles Mrs. Barnard. Ada Mary took first and second prizes in class showing at York, when only two blooms were staged, August 5th. Lauretta took first prize at Manchester, August 19th, as the best light red; and also received a first-class certificate. Eva was placed first at Manchester, beating Mrs. Barnard, Mrs. Turner, and all the other light roses.

FLORICULTURAL OPERATIONS FOR OCTOBER.

IN THE FLOWER GARDEN.

General Operations.—*Border Plants*, cut down or pull up such as are decayed; protect such as are rather tender or half-hardy, with leaves or fern. *Composts*, as last month, turn them over occasionally in frosty weather. *Cuttings*, plant. *Edgings* trim, and lay down new. *Evergreens*, plant and dress. *Flower-beds and Borders*, dig over and dress, being careful to avoid injury to bulbs and other plants with decayed foliage. *Grass*, mow and roll; lay down turf. *Hedges*, trim. *Leaves*, gather, and sweep from walks and lawns; store up for compost. *Planting*, this is an excellent time for. *Prune*, generally. *Seeds*, gather as they ripen. *Shelter* all tender plants or shrubs on the first indication of frost. *Sticks*, place to bulbs and plants whose foliage is decayed. *Trench* all vacant ground.

Cultural Department.—*Alpines and Rock-plants*, towards the middle of the month, according to the weather, the whole should undergo a good cleansing, cut off decayed leaves, and stir the soil about them. *Anemones*, this is decidedly the best time for planting, the soil should be friable loam, well intermixed with coarse sand, and leaf mould; the bed should be eighteen inches deep, and in a sheltered part of the garden; it should be protected from rains by a covering over it, to keep it tolerably dry for planting. Put in the tubers in rows six inches apart, and cover them two inches with the soil. When planted, cover the bed with a stratum of leaves or fern, as a protection from frost; remove it when the plants appear. *Annuals*, pull up those that have gone out of bloom. *Biennials and Perennials*, cut down the flower stems of such as are out of bloom, unless seed be wanted; those that are rather tender should have a protection of leaves. *Bouvardias*, as soon as frost appears take up with balls of earth to the roots, and pot them. *Bulbs*, plant out for a succession towards the close of the month. *Chrysanthemums*, take up such as are for in-door bloom, or in pots; they may be placed in a frame, and from thence transferred to the Greenhouse (see Greenhouse department). *Dahlias*, save seed from the best varieties only. *Fuchsias*, plants established in beds should be protected with a stratum of dry leaves or old tanners' bark to the depth of six inches, which should also be covered with a little soil to prevent being scattered by wind. *Guernsey Lilies*, in beds, should have a thick covering of dry leaves for a protection. *Hollyhocks*, collect seed as it ripens, and cut down stems as last month. If the new shoots of plants cut down last month be strong enough, it is a good time to put in cuttings. Towards the close of the month put a covering of dry leaves round the plants in the border, a few inches thick, and over these a layer of road sand, forming a slope round the plants, so that too much moisture may not get to the roots during winter. The general stock of struck plants in pots out of doors, should be taken into the frame towards the close of the month. *Honeysuckles and Jasmines, etc.*, prune and train, also dig over the ground around the roots. *Hyacinths*, prepare the beds, taking out the earth to the depth of two feet, and filling up with a mixture of half sandy loam, and half rich rotten dung well incorporated, to which should be added a handful of salt. In ten days, when the bed has settled, plant the bulbs four inches deep, and eight inches asunder. *Lilium lancifolium*, when the soil has become dry shake out the bulbs, and remove the dead stem, twisting it gently out. Part such bulbs as require it, and cut away old roots. Repot in the same compost as recommended in March, and plunge in ashes under a south wall. *Lily of the Valley*, divide and replant. *Pentstemon speciosum*, last year's plants may be put out in the border, being protected in wet weather by a hand-glass. *Pinks*, make beds and put in plants; the soil should be composed of fresh loam, with an equal proportion of cow-dung two years old; the beds should be raised, and convex in the middle to throw off excess of wet. *Polyanthuses*, those in the open ground should have a hollow tile placed over them to protect them; those in pots plunged in a north border must be preserved from heavy rains by mats over hoops, or by sashes. *Ranunculuses*, plant for early spring. *Roses* that have been budded should have the branches of the stock shortened to eight or ten inches long, by the end of the month, as soon as the sap has "gone down." *Salvia patens*, cut them down and take up on a dry day, shake off the soil and let them lay for a few days in a dry shed, next pack them closely in a rather deep box, and fill up the space with peat, in layers, covering the whole with rough peat over the top. They may be preserved through the winter in a dry cellar or other convenient place. *Trees and Shrubs*, this is a good time to plant or remove them. *Tulips*, sow seed in beds prepared for its reception, it should be protected from frost by layers of leaves or mats; when carefully attended to, the plants will appear above ground by the middle of February. Planting may commence.

IN THE GREENHOUSE, COLD PIT, AND FRAME.

General Operations.—*Air* must be admitted on all favourable occasions in the day time, more sparingly at night. *Clean* the pots, and *top-dress* all plants as they are introduced into the pits and houses. *Plants* of tender habit should generally be taken into their winter quarters this month, the hardier sorts may be deferred till about the end of the period. *Water* more sparingly, except in the case of plants whose blooming season is coming on, as *Chrysanthemums* and *early Camellias*. Keep all erections neat and clean; and have protecting materials at hand in case of frost.

Cultural Department in the Cold Pit and Frame.—*Alpines*, keep clear of weeds, and stir up the surface soil; a moderate supply of water should be given, the best time is early in the morning, that it may drain away before night comes on. *Auriculas*, place in their winter quarters on the first approach of unfavourable weather; remove dead leaves and keep clean; if a frame be not prepared for their reception, they may be placed in a shed facing the south, and well protected from driving rains or wind; here they may remain until the end of November. They will not require a mat in front at night, since it matters not how cold the weather be, if the plants are kept dry. Water sparingly every four or five days. *Campanula pyrimidalis*, as soon as out of flower, turn the plants out of pot, and cut the roots into as many pieces as you desire to have plants; place five or six pieces into a forty-eight sized pot, half filled with good mould; after watering, place them in a box frame. *Carnations and Picotees*, early in the month place in their winter quarters, where they are to remain till spring. As heavy rains often occur in autumn, have the plants protected overhead, to save them from the certain injury they would otherwise sustain by water lodging in the centre, or the bottom of the leaves. If, during winter, dark spots or blotches of mildew appear on the leaves, immediately dust over and under with sulphur. *Cinerarias*, continue to pot, and remove to the cold pit. *Cyclamens*, pot, and introduce to the cold pit, plunging them up to the rim in cold ashes; in mild weather the glasses should be taken off, but by night protection from frost is indispensable, as well as from cold winds by day. *Fuchsias*, pot off cuttings put in last month when sufficiently strong, using large sixty-sized pots; set them in a frame for the winter, and when they begin to grow again, pinch off the leading shoots to make bushy plants. *Guernsey Lilies*, those in pots should be kept from frost by bringing them into the cold pit by the middle of the month. *Ixias*, *Sparaxises*, etc., plant the bulbs in pots to the depth of about an inch, and set them in the cold pit. *Lobelias*, *Herbaceous*, take up with a moderate ball of soil to each, pot, and place in the frame, where they should be preserved through the winter in a rather dry state. *Mignonette*, *for winter*, repot into eight-inch pots for blooming; still stop them, bring them into the cold pit towards the middle of the month. In December you will be in possession of short, stiff-jointed, and nicely grown plants. *Nicotiana*, pot off plants into sixty-sized pots, and place in the cold pit, where they may remain till spring. *Primroses*, *Chinese*, remove to the frame, placing them in a light, airy situation, as near the glass as possible. Care must be taken in watering them through the winter, to keep the leaves dry, or the plants will damp off. *Stocks*, *Intermediate*, repot in forty-eights, in the same soil as before, then place in the cold pit or frame, where they may remain through the winter. Allow all air possible, to keep them dwarf. Remove all dead leaves that are likely to cause damp. *Tussilago fragrans*, it will be observed that every plant will have formed a bold, swelling flower bud; by keeping a few plants in a cold pit, the succession of a supply may be kept up till March. *Verbenas*, place the plants in a cold pit, near the glass; gradually reduce the supply of water, and avoid damp; fumigate and dust with flowers of sulphur to prevent mildew.

CULTURAL DEPARTMENT IN THE GREENHOUSE.—*Azaleas*, bring into the house, if not already done; see to the drainage of the pots, and give a top dressing previously; attend to watering. *Camellias*, see last month's instructions; should the plants be too thickly set with buds, thin them out, attend to watering, and syringe occasionally. *Chrysanthemums*, bring in such as are for in-door bloom. Pot off, and bring in doors, about the middle of the month, the layers that are now ready. It sometimes occurs that the green-fly attacks the plants as soon as they are housed; on the evening of the day it is first seen, strongly fumigate them with tobacco, and repeat it on the evening of the third day. *Cinerarias* may be brought in at the end of the month; if mildew appears, dust with sulphur. Those for exhibition will benefit by a shift. *Pelargoniums* shift, repot and stop, as required; keep the house dry for them, and well aired, water in moderation. *Roses*, *in pots*, should all be brought in for early bloom; shift as required, pruning the old roots. *Succulents* should have but very little water.

IN THE STOVE.

GENERAL OPERATIONS.—*Air*, admit during fine days, also a little at night, if the temperature be not too low. *Bark-beds*, turn and renew. *Compost*, *Decayed leaves*, *Insects*, *and Shade*, as last month. *Syringe* occasionally. *Top-dress*, and keep pots clean. *Water* should be given with a sparing hand, unless to such plants as are coming into bloom.

CULTURAL DEPARTMENT.—*Achimenes*, as last month. *Gesnerias* and *Gloxinias*, as last month also. *Orchids*, temperature for these may be kept from about 80° by day, to 70° at night, and for the Mexican house ten degrees lower; syringe occasionally. *Succulents* should have very little water. *Winter-blooming plants*, continue to encourage by every means.

QUESTIONS, ANSWERS, AND REMARKS.

Gynerium argenteum.—The Pampas Grass is a striking plant. I have a specimen now in "flower" in my garden, growing freely in good loamy soil, and forming a fine tuft four feet through, bearing fourteen flowering stems, as thick as a large cane, and near twelve feet high. The tufts at the extremity of the stems are about a foot and a half long, and have an elegant silvery appearance. The leaves measure (some of them) nine feet in length, and bend gracefully downwards. The plant is in a sheltered corner, backed by a wall covered with ivy, against which its pale silvery looking foliage and tufts have a very distinct and exotic look. This is a plant that will look well in a shrubbery, or on a lawn; near a clump of rockwork it would also be quite in character.—*J. D.*

Canarina campanula.—This very showy deciduous herbaceous greenhouse plant is one which should, I think, be put in the list of "neglected plants," as it is but rarely met with in collections, at least in private ones. The flowers are really very pretty, like an orange Campanula, marked very delicately with red veins, and borne at the extremity of every branch. The leaves and stems are of a lead-coloured green, and the entire plant forms a spreading bush of some four feet high. It flourishes in loam and peat, mixed with a small portion of sand and leaf mould; the pot should be well drained, and when out of flower it wants very little water. A rather warm situation in the greenhouse suits it well, and in such a place it will flower for a long time, and secure plenty of admirers.—*Clericus.*

Orchis longicornu.—Although introduced to our country so far back as 1815 this continues to be a scarce plant, for what reason I do not know, as there is nothing peculiarly difficult in its management; and those persons who have a taste for modest, pretty plants of this class, will find it a very desirable species, as it will keep in bloom for two or three months. The proper time for potting is the present month, and the most useful compost is fibry peat, with leaf mould, and a little gritty sand; three or four bulbs should be planted in a thirty-two-sized pot, well drained. They should be set in a cold pit, and frost carefully excluded. Until the bulbs begin to push they should be kept quite dry, when they may have water given by degrees; and at all times avoid wetting the leaves. The blooming period is from November to April, and if a few bulbs are potted in succession, they may be had in flower for a very long period. The flowers are purple, black, and cream-coloured; the name signifies "long horned," alluding to the length of the sepals.—*D. K.*

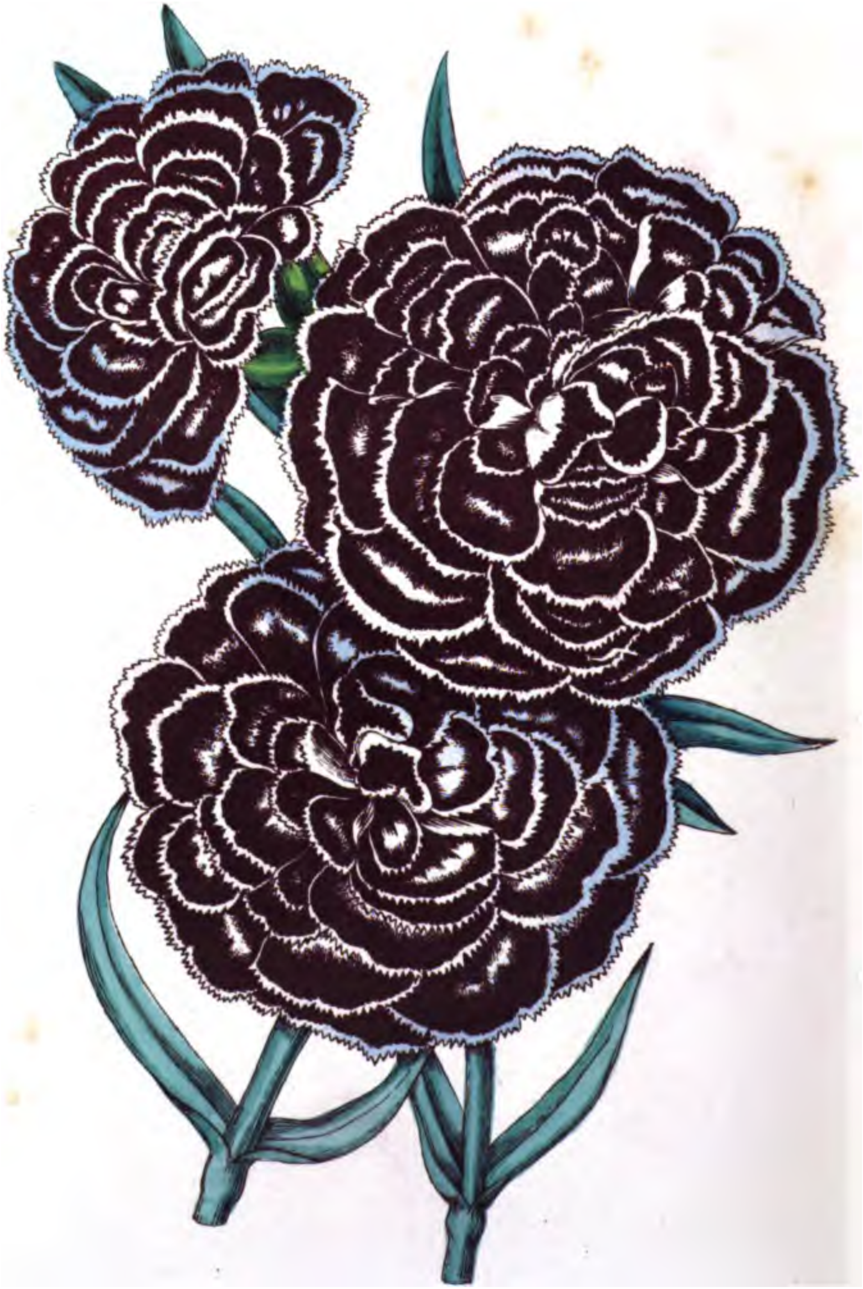
Criterion of the Carnation.—The flower should be not less than two and a half inches across. The guard or lower petals broad, thick, and smooth on the outside, free from notch or serrature, and lap over each other sufficiently to form a circular roseate flower; each row of petals should be smaller than the row immediately under it; there should not be less than three rows of petals, laid regularly, and the centre should form a good bold crown. The petals should be stiff, and slightly cupped. The ground should be pure snow-white, without specks; the stripes of colour should be clear and distinct, not running into each other, nor confused, but dense, smooth at the edges, and well-defined. The colours should be bright and clear, whatever they may be; if there are two, the darker one cannot be too dark, or form too strong a contrast. With scarlet the perfection would be a black; with pink there cannot be too deep a crimson; with lilac, or light purple, the second colour cannot be too dark a purple. If the colours run into the white and tinge it, or the white is not pure upon it, the fault is very great; pouncy spots or specks are highly objectionable. The pod of the bloom should be long and large, to enable the flower to bloom without bursting it; but this is rare; they generally require to be tied about half-way, and the upper part of the calyx opened down to the tie at each division; yet there are some which scarcely require any assistance, and this is a very estimable quality. *Disqualifications.*—If there be any petal dead or mutilated. If there be any one petal in which there is no colour. If there be any one petal in which there is no white. If a pod be slit down to the sub-calix. If a guard petal be badly split. Notched edges are glaring faults, for which no other excellence compensates.

PROPERTIES OF A GOOD HOLYHOCK.—There are three essential qualities in a good flower, which may be enumerated thus:—1st. The diameter across the centre should not be less than three inches, and the outline not less than half a globe; the florets of which it is composed should be thick, dense, whole on the edges, and entirely free from fringe or serrature. 2nd. The principal or guard petals should not extend more than from a quarter to half an inch beyond the outline of the centre: they should be thick and flat, forming a circle, and entirely free from notch or serrature. 3rd. Size is a distinct property; when equal in other respects, the larger the better.—*Mr. Downie.* The definition of a good flower, in my opinion, is as follows:—1st. It is indispensably necessary that the petals be of good substance, the edges perfectly smooth and even. 2nd. The florets occupying the centre must be compact, closely arranged, rising in the middle so as to make a half-globular form, with a stiff guard-petal extending about half an inch, or rather more, from the centre florets. 3rd. The arrangement of the flowers on the stem or spike ought not to be too thick or too thin.—*Mr. W. Chater.* The essential qualifications of a good Hollyhoch are:—1st. Shape; this should be something less than half a ball. The flowers should be free from pockets, the anthers not seen. The petals should be free from indentation or notch. 2nd. Size; the ball should be from one and a quarter to two and a half inches high, according to its diameter: the greater the diameter the greater should be the height. The diameter of the ball should never be less than two inches and a half. The guard-petals should extend from three-eighths to five-eighths of an inch beyond the ball; the larger the ball the greater should be the guard-petal. What we aim at is proportion. The different parts of the flower should bear such relation to each other that the whole may be uniform, and in nothing offend. 3rd. Substance; the petals should be thick and smooth. 4th. Spike; this should never exceed seven feet. The longer the footstalks, in moderation, the better, as the bulk of the spike is in proportion to their length, and the greater the bulk the finer the object.—*Mr. Parsons*, in "An Hour with the Hollyhock."

TIGRIDIA PAVONIA AND CONCHIFLORA.—The difficulty so generally experienced in keeping these bulbs through the winter is, I believe, caused by their being taken up too soon, as they do not fully ripen in our climate before frost sets in; the most advisable plan, and one that I have proved successful, is to allow the bulbs to remain in the ground until the end of January, covering them with dry leaves, or litter so as to keep the frost from them. At this period they are taken up and potted, placed in gentle heat until the leaves have made some progress: after this they are transferred to the cool greenhouse or pit, until the early frosts are past, when they are planted out in the border with entire balls, being very sensitive to injury to their small roots; they should not be covered with more than an inch of soil. In this way there will be few plants lost.—*C.M.*

BOTANICAL MISSION TO THE CHINESE SEAS.—It having been considered by Sir Wm. Hooker a good opportunity for making botanical researches in the little known districts of the Chinese Seas, he has obtained Government consent and aid in forwarding a collector to accompany the steam yacht "Emperor," designed as a present to the Emperor of Japan, which it is considered will afford an excellent opportunity for obtaining specimens of many fine plants from that imperfectly explored country. After a short stay in Japan, Mr. Wilford (of the herbarium department, Kew), will be transferred to the "Actæon," now engaged in a survey of the coast of Tartary, and will botanise the districts lying near the mouth of the Amur, and in Corea. Mr. Wilford is expected to remain out three years on this most interesting exhibition.

HYACINTHS AND WINTER BULBS.—These can be grown in baskets of moss with excellent effect. The baskets may be varied in shape and size, painted green, or stained and varnished, according to the fancy of the amateur; they must have the lower parts impervious to water, either by being made of metal, or by having a china dish put in of the right size. This must be filled with sand, covered with a layer of moss, on which the bulbs are to be placed. If rooted before put in the plants will be more sure of a regular advancement. The whole should be covered with the best specimens of fresh green moss that can be procured, and a moderate degree of moisture kept up in the whole mass. If the colours are properly varied, these moss-baskets will prove beautiful objects.—*W. P.*



ALBO-NIGRICANS.

The Floricultural Cabinet.

NOVEMBER, 1857.

ILLUSTRATION.

BEDDING-PINK—ALBO-NIGRICANS.

THE Pink has always been a favourite with the florist, and deservedly so; with the poets also, who gave it the name *Διος αντθος*, *Dios anthos*, "Divine flower," from which circumstance we have the generic name *Dianthus*. The French name for the Pink is *Œillet*, signifying a little eye; and the English name Pink is nothing more than the Dutch word *pink*, signifying also *an eye*, the latter nation having been some time ago famous for their cultivation of this sweet flower. If we go back to the days of Queen Elizabeth, we learn from Gerarde that the Pink was even then cultivated in its double state; and this is the first writer who calls it by the name of "Pink, or Wild Gillyflower." Some years later, Parkinson, in his "Paradisus," enumerates twenty-five varieties in "a list of such flowers as being cultivated in this country for a great length of period, are therefore considered as English flowers;" and tells us also how they were great favourites in the time of his unhappy master, Charles the First. London and Wise were the first English nurserymen that we know of who directed special attention to the improvement of the Pink, and in their "Retired Gardener," 1706, have devoted more space to the cultivation of this plant than to any other flower.

ALBO-NIGRICANS is a bedding variety, introduced to notice by M. Verschaffelt, of Ghent, who obtained the stock from M. de Taillasson, President of the Horticultural Society of Nancy. For bedding purposes it is a decided acquisition, and when more generally known will be extensively used; the flowers are of large size, and remarkably full; the colour a deep rich purple black, and the white margin clear and broad; it is an abundant bloomer, fragrant, and the pods not much given to splitting.

REMARKS ON POPULAR FLOWERS AND OLD GARDEN FAVOURITES.

BY MR. EDWARD SHEPPARD.

No. II.—The Honeysuckle.

"So doth the Woodbine, sweet Honeysuckle gently entwist."
Midsummer Night's Dream.

TO describe so well-known a plant as our common Honeysuckle, *Caprifolium periclymenum*, were superfluous—every one is acquainted with the Woodbine, that emblem of sweetness of disposition and affection,—an emblem of suavity through its delicious fragrance, and of affection by its clasping and embracing shoots. Wherever fixed these retain a firm hold, and although incapable of affording support themselves, they frequently ornament what would otherwise be an unsightly object.

The Honeysuckle is styled "the poor man's flower," and rightly too, for we frequently observe it clustering over the rustic porch and occupying a small portion of the soil in the humble gardens of the poor man, and perhaps there are few hardy climbing shrubs more adapted to the purpose, or that can at least render half so agreeable a fragrance.

"By rustic seat and garden bower,
There's not a leaf, or shrub, or flower,
Blossom or bush so sweet as thee,
Lowly but fragrant Honey-tree.
By stately halls we find thee not,
But find thee near the lowly cot,
Or latticed porch—by humble door
Thou leanest with thy honied store.
Tree of the cottage and the poor!
Can palace of the rich have more?
No! sweet content as seldom dwells,
In palaces as lowly cells."

The Honeysuckle is a great favourite with the poets, and many pages might be filled with quotations, exhibiting it in all its numerous aspects and situations. As a climber it is represented entwining the stems and trunks of almost every tree that endures our climate: Barry Cornwall has chosen the poplar as its support.

"———— the poplar there
Shoots up its spire, and shakes its leaves
Fantastical—while round its slender base
Rambles the sweet-breathed Woodbine."

In another place the cypress is chosen.

"And there the frail perfuming Woodbine strayed,
Winding its slight arms round the cypress bough."

Churchill represents it as gracing the elm.

> "The woodbine, who the elm in marriage meets,
> And brings her dowry in surrounding sweets."

As a covering for "herbers" or arbours, our old poets frequently use this plant; and in the olden time it appears to have been the only sweet-scented climber, excepting perhaps the Rose and Jasmine, known to them. Ben Jonson makes a pretty picture of it with a mixture of other climbers; in the "Vision of Delight," he says—

> "——— Behold
> How the blue bind-weed doth itself infold
> With Honeysuckle, and both these entwine
> Themselves with bryony and jessamine,
> To cast a kind and odoriferous shade."

In its native wildness also they have commemorated the "Woodbine," one, our "Prince of Poets," tells us—

> "I know a bank whereon the wild thyme blows,
> Where oxlip, and the nodding violet grows;
> O'ercanopied with luscious Woodbine,
> With sweet musk-roses, and with eglantine."

Of *Caprifoliums* there are a great variety of species, inhabitants of various regions, embracing a diversity of climate, from India to Hudson's Bay, from the torrid almost to the arctic zone. The prevailing colour of their blossoms is yellow, passing into shades of orange and red; one or two are white, pink, and even crimson. The allied genus *Lonicera* also embraces several species, very similar in colours and blossom; all grow freely on any common soil, and cuttings taken off early in autumn will root with facility, which affords us an easy means of increasing stock whereby to decorate our grounds or ornament the rustic porch. Small gardens should have plenty of such things as Honeysuckles and other climbing shrubs, and where rustic arches, bowers, fences, and other means are afforded for the plants to run over they conspire to make an enchanting scene even in gardens of very limited dimensions.

CAMELLIA BUDS NOT SETTING.

BY MR. JAMES STEWART, GARDENER, WITCHINGHAM HALL, NORFOLK.

COMPLAINTS, as it is well known, are frequently made about Camellias losing their buds, and of buds not setting, leading to much disappointment, especially to the amateur. As a grower on a small scale, and with little room for properly cultivating this magnificent plant, I yet manage to have my plants in flower from the end of October to the close of April. The treatment I pursue may, perhaps, be detailed to the advantage of others less successful, and is as follows:—In the first place, the present is the season of the year in which I prefer to shift my plants, as I am of opinion the Camellia makes more root in the winter than during any other period of the year—another reason that I would adduce in support of this treatment is, that when the plant comes into flower it has the strength of the unexhausted soil to work in. At this period, (October) therefore, I shift the plants, and place them in their winter quarters, which in my case are their flowering quarters also, namely, a common greenhouse; here they remain until they have done blooming. All the winter I water the plants but sparingly till about the commencement of February, when, as the days get longer and the sun has increased power, I give more water, and continue to give a rather liberal supply until flowering time is past, after which I place them in a vinery, where the temperature is maintained from fifty-five to sixty degrees, and give water daily, whether they appear dry or not, so as to keep the soil damp both at the bottom and at the surface until the plants have made their wood and are showing buds, when I withdraw the water a little until they have set their flower-buds about the size of peas; then I place them under a north wall, out of doors, still attending carefully to watering in moderation for three weeks or a month. After this they should not have much at a time, nor so frequently, or the plants would be induced to start again and make a second growth, one of the causes of losing a great number of flower-buds.

The compost I prefer to pot in is made up of three parts good sandy loam, one part peat soil, and one part soot; this mixture will be found to preserve the foliage of that dark green hue that is one of the chief beauties of a well-grown Camellia.

The foregoing remarks are chiefly intended for those who cultivate the Camellia on a limited scale, and not for such as have a house devoted to the sole cultivation of this noble plant. Should you, Mr. Editor, afford them space in your excellent periodical, they may prove of service, and at no distant time I purpose forwarding for insertion a few additional observations.

CAPE PELARGONIUMS.

BY CLERICUS.

FOR some years these pretty plants were assiduously cultivated, and new varieties diligently sought after;—collectors were sent out from some of our own nurseries to explore the districts of the Cape Colony for Pelargoniums and Heaths. Mr. Lee's collectors were eminently successful in the introduction of numbers; others were great cultivators of them, and among these may be specially named, Messrs. Sweet and Colville; the latter gentleman was the originator of a large collection. After a time the cultivation of Cape Pelargoniums in a great measure ceased, and many species were all but lost altogether.

Within the past few years attention has been re-directed to this interesting tribe, and their culture has again become popular. When we behold a good collection, in nice health, and well managed, we may justly feel surprised that they were ever treated with indifference, but such is the lot of more plants than one. When first made known, Cape Pelargoniums were grown in a very poor way; it was usual to see them weakly, straggling, or stunted specimens; but the science of the present day has reared nobler examples, and instead of a plant that would be considered almost a disgrace to an establishment of our time, we find them well grown, healthy, compact bushes, bearing a profusion of bloom. I have succeeded in making a tolerably good collection myself, and have grown them with success. Some of the fine species figured by Mr. Sweet in his "*Geraniaceæ*," are, I fear, lost, and we may have to wait a considerable time before they are re-introduced. Nevertheless I have gathered together a very interesting selection, and am always ready to add to the number. Before saying anything of my treatment, it may be as well to mention the names of such as I grow, which comprises the following:—

Anemonefolium.
Ardens.
——— superbum.
Bicolor roseum.
——— major.
Bipinnatifidum.
Blandfordianum.
Campylia elegans.
Comptonium roseum.
Elegans.
——— superbum.
Erectum.
Echinatum album.
——— purpureum.
Elatum.
Flexuosum.
Formosissimum.
Fulgidum.
Glaucifolium.
Glaucum.
Holosericum,
Jenkinsoni.
Phymanthus tricolor.
Pinnatifidum.
Quinquevulnerum.
Reniforme.
Sanguineum.
Selectum.
Semperflorens.
Ternatum.
Tricolor major.

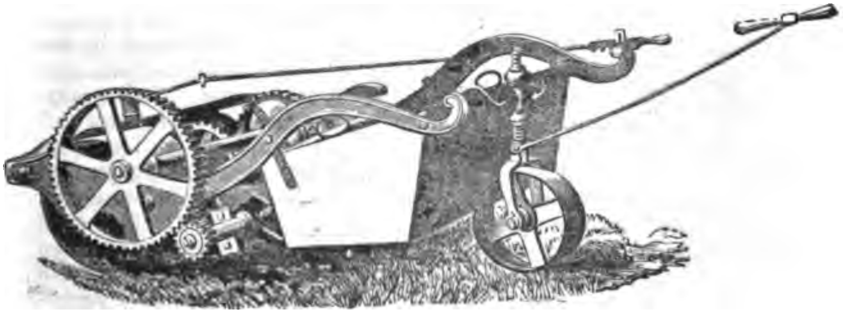
The compost I use is made up as follows:—One part turfy-loam and two parts peat soil, mixed with a small proportion of cow-dung from an old heap, thoroughly decomposed, resembling friable black soil, and a similar quantity of silver sand. For drainage (which should be open and free), I use lumps of charcoal mixed with small crocks, and when the specimens are shifted into large sizes, I mix a little of the draining material with the compost also, in order to make it more open. Commencing with the period when the plants have done blooming, my treatment is as follows:—I immediately diminish the quantity of water afforded them, but gradually, rest being essential to their blooming well next season; indeed at all times caution is necessary in administering this element, a large or too frequent supply being injurious, even if the pots are ever so well drained, as the roots being small and tender are not able to endure it, and in such a case the plants assume a sickly appearance. As they begin to grow, I tie them out neatly and regularly, without using more sticks than are absolutely required, too many supports not only detract from the beauty of the plants but do positive injury to the fibres of the root. Those plants that require it may be cut down with as much safety as any other Pelargoniums, and then are benefitted by being placed in a little heat. As the plants progress the syringe may be used in the evening, to give them a light sprinkle over the foliage. Green fly is a great pest to this tribe; as soon as one insect is perceived, fumigate them immediately with tobacco, and keep a close watch, or the leaves will be speedily discoloured and the plants injured. Propagation is readily effected by cuttings, selecting good strong shoots for this purpose after the bloom has gone over. Insert each cutting in thumb pots, using finely sifted peat and plenty of silver sand; cover with bell glasses and plunge them in bottom heat, where they will soon root well, and make nice little plants; give them air, however, or there is great liability to damping off, and as soon as they have made roots remove the glasses altogether.

Should these remarks be instrumental in promoting a more extended cultivation of Cape Pelargoniums, I shall be gratified; in every way this tribe is well deserving of the little trouble required in their management.

RECENT IMPROVEMENTS IN HORTICULTURAL APPARATUS, IMPLEMENTS, AND MANUFACTURES.

(Continued from page 273.)

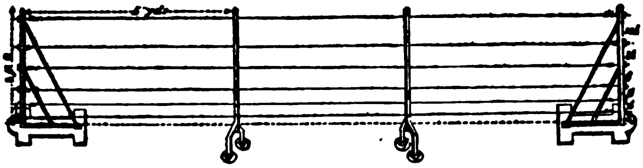
SEVERAL new forms of Hand Mowing Machines for mowing lawns, verges, etc., have been put forth, all possessing merit in some one or more points, but the best and most effective we have seen is certainly that of Messrs. Shanks, of which the annexed figure is a representation. It has a contrivance for regulating the length of the cut in a few seconds by merely turning a small screw, and being of simple construction is not liable to get out of order, while the plate is so adjusted as to prevent its tearing up the turf, a defect that has frequently been complained of in other Grass Mowing Machines. It may be worked with ease by one person, and cuts and rolls very evenly at the same time. We were much pleased with this implement, and have no doubt Messrs. Shanks will have a large sale for their excellent invention.



Shanks' Hand Mowing Machine.

Fabrics for shading have been produced by two or three manufacturers; we have made trial of Shaw's Tiffany and Brown's Floral Shading, which have a close resemblance, the former appears to answer the purpose very well; for the latter we are not able to speak so satisfactorily at present; the texture of the Floral Shading is light, semi-transparent, and serves to admit a subdued light and protection from the scorching solar rays.

Messrs. Gidney and Son have produced a very excellent description of wire fence, combining lightness with strength, as well as ease in setting up. It is very portable also, and may be packed in bundles for convenience of carriage. One of its chief recommendations, however, consists in its requiring but two straining standards, one at each end, however long the fence may be; while at the curves or angles of any piece of ground to be fenced off there are stronger uprights or angle standards, or trees may be made to serve instead, when they happen to stand conveniently for the purpose, thereby saving expense, and without injury to the timber. The wires can be had placed at any given intervals, so as to exclude larger or smaller intruders, and the prices are very moderate; so much so, that we believe this description of fence will shortly become as common (or even more so) as any other metal fence of the kind.



Improved Strained Wire Fence.

(To be continued).

THE EPACRIS.

BY A NOBLEMAN'S FLOWER GARDENER.

MANY countries possess a flora characterised by the presence of plants which are found nowhere else, and therefore peculiar to that region. It is a curious speculation to inquire into the "reason why," but one also into which it is unnecessary for me to enter now, more especially as the solution of the question has puzzled wiser heads than mine, and an allusion to it might here be considered out of place, were I not reminded of it by the fact that the Epacris is a plant found indigenous only in Australia, and its appendage, Van Dieman's Land. When first discovered it was considered to be a kind of Heath, and certainly there is in many points a close resemblance between the two genera. Like the latter at the Cape, Epacrises abound in New Holland, but no true Heath has been detected in company with them. The habits and requirements of both are similar, and the method of treatment adapted to Heaths suits the Epacris almost equally as well. It may be almost unnecessary for me to enlarge upon this head, but before describing a few of the most attractive varieties, I will briefly detail my practice, by which I have always been most successful in flowering these gems of the greenhouse in the greatest perfection, and have had a most extensive display of these beautiful plants in winter, when their presence adds so materially to the decoration of the house at that period.

A mixture of peat and silver sand is the only compost in which the Epacris can be grown successfully; and for this purpose the peat should be broken up in small lumps and the sand intimately mixed with it; free drainage is equally essential, and when potted a layer of moss should be placed over the crocks to prevent the finer portions of the compost being washed away in watering. They should be potted high, like Heaths, or there is danger of the collar rotting if buried in the soil.

After blooming, cut back the long flowering shoots and remove the plants into a close frame, where they should be shaded and left until they have begun to push afresh. If a stove is available, it is a good plan to place them in it for a week or ten days, which will much assist the plants. Place them in a cool frame to harden off as soon as they have made young shoots, and attend to a proper supply of air. When the new shoots have attained the length of a finger, the plants may be repotted, carefully removing a portion of the old soil from the outside of the ball. They will then require a few days' shade, and as the season advances may have the full benefit of the air by being set out of doors, selecting a shady place for them, where they may be sheltered, and placed on ashes, or some dry material of a like nature. Here they will require little attention until the close of summer, except to stir the surface of the soil occasionally, to see that they do not become very dry, and to be turned round. By the end of September let them be taken into the house; but previous to this, look them over to remove any decayed parts and clear the pots. In autumn and winter they require only sufficient temperature to preserve them from frost, and never present so healthy and vigorous an appearance as when they are allowed abundance of air, which therefore admit on all possible occasions.

We frequently meet with plants that are straggling and unhealthy; this is caused through neglect in potting. In all such cases cut back the shoots, and pot them as directed, when they will soon present a different appearance. The use of fine or sifted peat clogs up the drainage, rendering the soil too firm for the water to pass off readily, and the consequence is unhealthy, yellow-looking shoots. By making use of peat in small lumps, this is obviated, and the plants grow well in it.

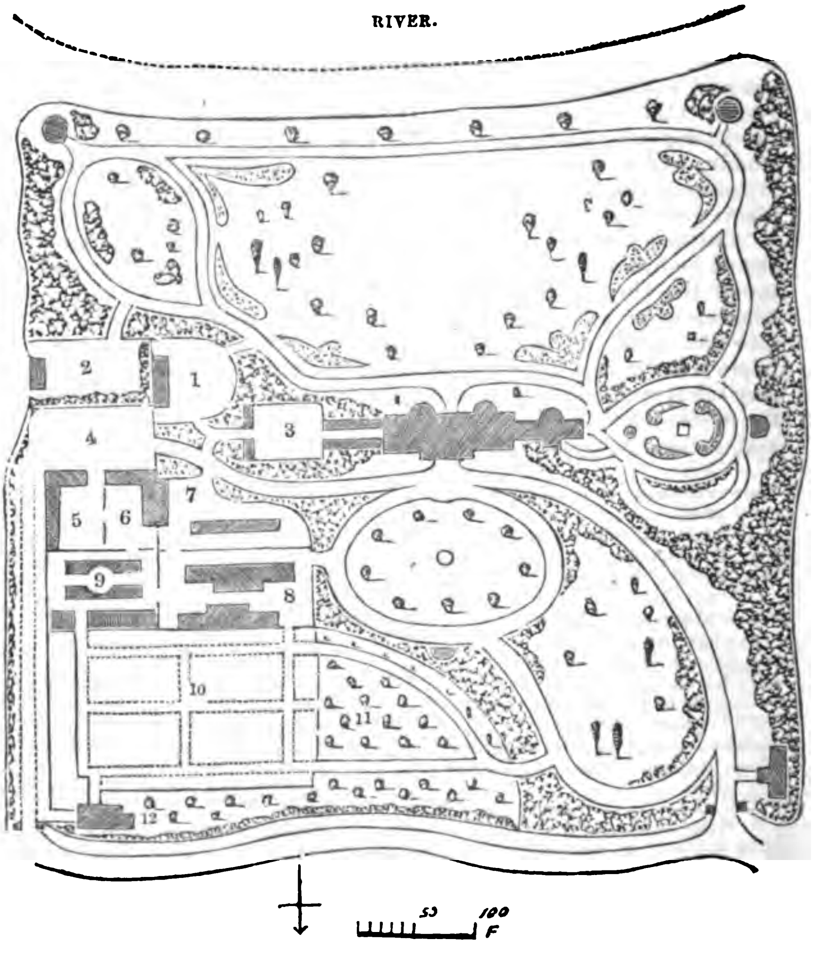
Cuttings made from the wood not fully ripened strike best. They should be inserted in silver sand, covered with glasses, and plunged up to the rims in bottom heat. They do not strike so freely in summer as at other seasons, however. When rooted, pot them off into small pots, and harden off by degrees. The following list comprises a few of the most select varieties, from which the amateur may select at pleasure, with every confidence of the truthfulness of the descriptions:—

Epacris attenuata alba, very pure white, free.
*—— carminata, rosy-orange, very distinct.
—— carnea, brilliant carmine-red.
—— coruscans, deep red, tubes very long.
—— delicata, delicate pink with white tip, fine.
*—— eclipse, rosy pink and white.
—— elegantissima, deep rose.
—— fulgens, orange-red, fine.
—— fulgida, carmine.
—— grandiflora, rosy purple shading off to white, long tubes.
———— rubra, crimson and white.
*—— hyacinthiflora, deep rosy-blush, very free.
*———— candidissima, the best white, very free.
—— impressa, rosy carmine.
———— candida compacta, pure white, very fine.
———— coccinea, scarlet.
*—— Lady Alice Peel, light salmon, quite new in colour, and very free.
*Epacris Lady Panmure, white, very long spikes of bloom.
*—— Lucifer, clear rosy-scarlet, very fine.
—— magnifica, rosy-blush, very free.
—— microphylla, white, a very neat and distinct variety.
—— miniata, orange carmine tipped with white, fine.
*———— splendens, bright orange-crimson and white, fine.
*—— Mrs. Pym, bright rose with pale blush tips, fine.
—— vivalis, white, free.
*—— Princess Royal, purple or violet-rose and white, tubes long.
—— sanguinea, deep scarlet or blood colour.
—— splendida, orange-scarlet, free and very fine.
—— Tauntoniensis, deep rose, very free.
*—— The Bride, light blush, free.
*—— Viscountess Hill, fine orange-red, free.
—— Wilmoreana, light rosy-carmine, tubes very long.

Those varieties marked * are new, and consequently sell at the present time at an advanced price; the rest are older varieties, but good, and can be procured at a much lower rate.

DESIGN FOR THE GROUNDS OF A VILLA ON THE BANKS OF THE THAMES.

BY T. RUTGER, ESQ.



As the number of houses, villas, etc., on the banks of the Thames, especially to the west of London, in the delightful neighbourhoods of Richmond and Twickenham, is constantly increasing, I forward a design suitable for a villa on the banks of that noble river, or for any other similar situation, believing it may prove useful to some of your many subscribers. The design here given comprises about eight or nine acres. The carriage drive to the house is by a lodge entrance. On the right of the house there is a conservatory attached, from which a flower-garden is entered, and on the north of the flower-garden in an open space to receive the greenhouse plants in summer. On the left of the house there is a court-yard and offices attached. At each of the south-west and south-east angles is placed a summer-house, supposed to be raised on mounds, to overlook both the river and the grounds; the one on the south-east angle is intended to have an upper room, with a veranda beneath. An alcove is placed at the back of the flower-garden, and one also at the north of the oval lawn at the entrance front. A road is given from the public road to the stables for convenience, to which the gardener's house may serve for a lodge. A light iron fence should separate the grounds from the towing path next the river. The remainder will be understood by the reference.

Reference.—No. 1, Poultry-court; 2, Bowling-green or Aviary; 3, Laundry, Brewhouse, and Yard; 4, Stables, Coach-house, and Yard; 5, Piggery; 6, Compost-ground for mixing dung, etc., and a Shed; 7, Range of Pits and a Shed; 8, Forcing Department; 9, Melon Ground with Sheds; 10, Kitchen Garden; 11, Orchard or Fruit Garden; 12, Gardener's House.

ON THE MANAGEMENT OF VINCA ROSEA AND ALBA.

BY MR. JOHN HARRISON, LATE GARDENER AT SYSTON PARK.

I HAVE grown these old favourites for many years with great success, and am sorry to find their cultivation in some measure going out of fashion, so much so that they may not improperly be classed with the "neglected plants" noticed in former numbers of your useful periodical; and we seldom see a specimen grown to any kind of perfection, or figuring respectably at our exhibitions, the most of them being of stunted growth, and far inferior specimens to what they may be made to attain. I have large plants in my possession, forming fine circular heads, with foliage of a most beautiful green and healthy appearance. When in full bloom, covered with their delightful blossoms, thoroughly expanded, the effect produced by them, either alone or placed among other plants on the stage, is almost beyond description. To show them off to advantage, I stand them on an inverted garden pot covered with fresh green moss, and when so placed, the entire mass of blossoms is seen at one time.

My plants are propagated from cuttings in the spring, selecting those that are the shortest pointed. I cut them off with a little of the old wood, and insert them in forty-eight sized pots, each nearly half filled with fine moss, pressed down as tight as possible. Over the moss I place some rich loam, with a small portion of bog earth, and spread two inches in depth of fine sand over the whole; in this the cuttings are inserted, being previously trimmed by cutting off the lower leaves, and making a clean horizontal cut across the bottom of the shoot. When inserted, the sand is pressed tightly round each cutting, and the pots plunged to their rims in a gentle heat, where they are kept, shaded from mid-day sun, until they begin to make roots. As soon as they will bear removal they are potted off into small sized forty-eights, taking care to have the pots well drained—a point of great importance in the successful management of the Vinca.

I shift the plants as soon as ever the roots have pushed sufficiently, using the same compost as for cuttings, namely, good rich loam and bog earth, well draining the pots, and plunge them again in gentle bottom heat. Attention is required throughout the summer to shifting and allowing the plants sufficient pot room, so that the roots do not become matted together. After two or three shifts, it is advisable to discontinue the use of bog earth, substituting a fourth part of well decayed hotbed manure. As the plants progress in size they are watered once a week with manure-water, which greatly invigorates their growth. In a few seasons the plants form strikingly handsome bushes, clothed with healthy, fine, green foliage, and covered with their lively blossoms in the blooming season. To keep down insects, the specimens should have a frequent good syringing over head and under the foliage; and to preserve their health in winter they do best in a stove or *warm* greenhouse.

Vinca Rosea and Alba are natives of the East Indies, from whence they were introduced as far back as 1756. Formerly they were more extensively, as well as better grown than they are at present, and formed one of the principal ornaments of the greenhouse. If the foregoing treatment be pursued, I feel assured none of your subscribers will regret the trouble; for myself, I may be permitted to add that, being a great admirer of plants when *well grown*, and having had considerable experience in large collections, I have never considered the attention necessary in obtaining this end thrown away or too much trouble, but especially requisite in my attempts to cope with, or rather to surpass my neighbours.

Should you deem these observations suitable for your valuable *Cabinet*, and likely to be useful to your subscribers, they are at your service. On a future occasion I shall have something to say respecting another plant equally valuable as well as neglected.

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A FEW WORDS ON WINTERING TENDER PLANTS.

BY MR. HENRY DYER.

THE great point to be observed in keeping tender plants in cold pits or frames during the winter season is to preserve them dormant from the end of October to the end of February; for as the development of plants is more dependant on heat and moisture than on other agents of healthy existence, it is evident that the more cool and dry they are kept in winter, so that they do not sustain injury from frost or drought, the more likely are we to preserve them through that season. In order to do this the pits and frames as well as the plants should be kept dry; when I say dry, I mean the soil in the pots should receive no more moisture than is absolutely necessary to sustain the life of the plant, and prevent flagging of the leaves. The pots should be placed on a good dry stratum of ashes or some other similar material that will absorb the moisture readily, and not allow it to accumulate. The floor of the pits also should have a gentle slope from back to front, and if a drain be made to run along the front so much the better, as there will then be no danger of humidity withinside. When the weather is moderate and favourable for the purpose I would allow all air possible, and so long as there is no frost, or close approach to it, it may safely be done; keen driving winds or rain must, however, be screened off. A degree of frost, even, that would be fatal to many plants *in a growing state*, may be borne by them with impunity, if dormant, and the same may be said of seeds, providing they are kept *dry*, and both kept closely covered until they are gradually thawed. For protecting cold pits, it is well to bear in mind that it is an advantage to keep the covering material, of whatever nature it may be, free from contact with the glass, by leaving a clear space of about an inch between the two. This will prevent, in a great measure, the abstraction of heat from the pit, by interposing a stratum of nearly dry air between the one and the other. Where the covering material is in contact with the pit, the two speedily acquire the same temperature, and heat is radiated from the covering material almost as readily as it would be from the pit itself; and this is more especially the case when cold winds prevail. After a shower, also, attended with a rise of temperature, the dissipation of the moisture by evaporation causes a great loss of heat. It will therefore be apparent, that if a stratum of air be allowed between the glass and framework and the protecting materials, the heat will be much economised; when the temperature falls, the effect within the pit is much retarded as well. One of the worst protecting materials is Russian mats, laid on the frames, and yet is the one most generally in use. Wooden shutters, tarpaulin, or canvas on frames, or thatched frames are all superior to mats laid over the glass, which absorb a large amount of moisture, and consequently carry off heat as it is gradually evaporated. When plants are preserved in rooms during winter, they should receive water in quantity just enough to support vitality, and be placed as near the glass as possible, but where they may not be frozen; and at night, if frost be severe, it is best to stand them in the middle of the room, and surround them with a few cloths, which will generally be sufficient to keep them from injury.

REVIEWS.

Cultivated Ferns. By John Smith, A.L.S., etc., Curator of the Royal Botanic Gardens of Kew, pp. 84. London: Pamplin. Price 1*s.*

Index Filicum; a Synopsis, with characters, of the Genera and enumeration of the Species of Ferns, with Synonyms and References. By Thomas Moore, F.L.S., etc., Curator of the Chelsea Botanic Garden. 12mo. London: Pamplin. In parts, at 1*s.*

THE lovers of Ferns may be congratulated on the increasing number of works treating of this most interesting tribe that are constantly issuing from the press. Mr. Smith's little work is a valuable guide to the identification of species, and embraces no less than 124 genera and about 800 species of Ferns, all of which are in cultivation in British gardens, and most of them at Kew, under the care of our esteemed author. Besides an enumeration of species, references to figures, synonyms, and habitats, the "Catalogue" contains the characters of all the genera, and consequently will be found a most useful companion to the student as well as to the cultivator.

Mr. Moore's "*Index Filicum*" is also a useful little work, and the author's name is a sufficient guarantee for its careful compilation. The species are arranged in alphabetical order for facility in reference.

The Phytologist, for October.

The October number of this excellent publication, contains, Notes of an Excursion in the districts of Kinross, Clackmannan, and Fife; *Bryum obconicum,* its discovery in Ireland, and localities for a few of the rarer Irish Mosses; Account of an Excursion to Lulworth from Weymouth, very interesting; Cheddar Plants; Anemone pulsatilla; Reviews; and Botanical Notes and Queries. *The Phytologist* is a magazine devoted exclusively to the botany of the British islands, containing much and varied information respecting our native plants, as well as a considerable amount of entertaining matter, notes of botanical excursions, etc., that render it not only a useful but a delightful work.

British Plants. By ALEXANDER IRVINE, F.B.S., etc. London: Nelson and Sons; in four parts, at 1*s.* 6*d.*

Two parts of this work have been received for our notice, being all that are yet out. We should, under ordinary circumstances, have waited until the completion of the book before recording any opinion on its merits; but from a perusal of what is already issued, we feel so entirely convinced of the practical utility of the book as to depart from our usual rule, and believe we shall be rendering a service to the student in drawing his attention to this work, from the pen of the learned editor of the *Phytologist* whilst it is still in course of publication. Mr. Irvine has succeeded in condensing a large amount of sound knowledge in a very moderate compass, and we feel assured his "*British Plants*" will be a valuable assistant and frequent companion to those who take "rambles in search of wild flowers," and a work of reference at other seasons as well.

Part I. embraces the following subjects:—Structural Botany, Physiology, Morphology, Geography of British Plants, Technicalities, and Taxonomy. Part II. contains the commencement of Descriptive British Botany, the arrangement being according to the natural system. The work is well illustrated by wood-cuts, and beautifully printed.

As a specimen of the descriptive portion of the work we select at random p. 278.

"ORDER XVI.—ARACEÆ. THE ARUM FAMILY.

"Herbs and shrubs terrestrial or aquatic, containing more or less of an acrid, caustic juice. Roots usually thick, fleshy and farinaceous. Leaves radical, sheathing, convolute in prefoliation, dilated or linear, with branching or parallel nerves. Flowers spiked (on a spadix) with a spathe, monœcious. Stamens definite or indefinite, very short. Ovary one rarely three-celled, many seeded. Stigma sessile. Fruit succulent, one-seeded by abortion, or many-seeded. Seeds with a farinaceous albumen.

"SYNOPSIS OF THE GENERA.

"*Arum.* Roots fleshy, leaves dilated, fruit pulpy.

"*Acorus.* Roots creeping, leaves linear.

"I. ARUM. Linn. Cuckoo-pint. Root thick, fleshy, Leaves radical, petiolate, hastate or sagittate, entire. Flower-stalk radical, with a leafy, convolute, sheathing spathe. Spike (spadix) naked and succulent, enlarged above. Stamens in whorls about the centre (middle) with filamentary appendages (abortive ovaries?). Ovaries below the stamens, numerous. Fruit succulent, one-celled, one or many-seeded. Seeds roundish, with a thick episperm (testa).

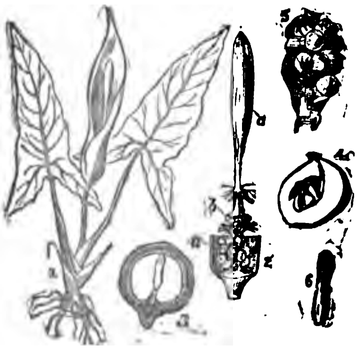


Fig. 117.—Arum maculatum. 1, entire plant, with root, leaves, and flower much reduced; 2, receptacle and column (spadix); *a*, ovaries; *b*, stamens; *c*, axis enlarged; 3 section of the seed, showing the embryo in the fleshy endosperm; 4, a longitudinal section, showing the (rarely three-celled) ovary crowned by the stigma; 5, the mature fruit; 6, the cylindrical embryo.

"The only British plant of this genus has no stem. Its leaves appear early in spring, near hedges, banks, and sheltered places. Every part of the plant is excessively acrid, and this quality does not appear to be dissipated neither by maceration nor by boiling.

"1. A. MACULATUM, Linn. Common Cuckoo-pint, or Wake-Robin. E. B. 1298, L. C. 1142. Root round, fleshy, with several fibres, very acrid. This quality is not dissipated by many hours' boiling. Leaves large, on long stalks, broadly hastate, shining, often spotted. Spathe light green, purple within, much longer than the spadix. Spike (spadix) erect, the enlarged naked part violet-coloured. Fruit, a cluster of beautiful red berries, appearing in August. Borders of fields and hedge-banks. Perennial. April, May.

"A. 14. C. 60. Lat. 50°—56°. Alt. 0—200 yards. T. 52°—47°.

"The mucilaginous fleshy roots, if dried or roasted, might possibly afford some nutritious flour. As above stated, many hours' boiling did not dissipate the acridity, and the root is accordingly deemed a very dangerous article, and, even if rendered eatable, not so palatable and wholesome as a potatoe.

"2. A. ITALICUM, Willd. Italian Arum. Curtis. 'Bot Mag.' vol. 1., p. 2432. Leaves triangular, hastate at the base, with divaricate lobes and white (yellow) veins. Spadix club-shaped, shorter than with a broad, spreading spathe. Thickets in the Undercliffe, Isle of Wight. Mr. Hambrough Curtis says, '*A. italicum* has often been confounded with *A. maculatum*, yet if any tolerable figure had ever been given, this mistake could hardly have been made. The whole plant is nearly double the size; the leaves are not only larger and veined with white, but the posterior lobes go off at nearly right angles from the foot-stalk, or are hastate, not sagittate. The spathe is very large, of a yellowish green colour, at first erect, afterwards rolled back at the point, etc. A native of Italy, Spain, and the south of France. (Compare 'Phytologist,' vol. iii., pp. 1009-10.)"

METEOROLOGICAL INSTRUMENTS FOR GARDENERS.

WE have frequently had occasion to urge the importance to the gardener of an acquaintance with the science of meteorology, and, in common with others who have pointed out the great benefits that would result, not only to gardening as a science but to science in general, were observations more numerously made and recorded, we must regret that this branch of knowledge, so useful in itself, and so interesting as a study, is still generally neglected; and that, when the state of the atmosphere is observed as regards pressure, temperature, or deposition of moisture, and the temperature and hygrometric condition of our stoves, greenhouses, and other horticultural erections for the cultivation of flowers or fruit is recorded, the observations in a great majority of cases are made with instruments that are far from trustworthy; and yet, unless made with good instruments, they are only calculated to mislead instead of instruct. It is true that of late years we have had a considerable increase in the manufacture and sale of barometers and thermometers, many of which are offered at exceedingly low prices, but from an examination of a large number of these instruments we are compelled to remark on their general want of accuracy, and consequent worthlessness for any useful purpose. Recently however, our attention has been drawn to a set of instruments manufactured by Mr. Casella, of Hatton Garden, a gentleman as well known for the excellence of his meteorological instruments as for his devotion to the advancement of this most important science.

One great obstacle that has hitherto operated as a check to the more general study of meteorology, and one that has especially applied in the case of gardeners (who are too often ill remunerated for their labour and skill), has been the high price demanded for reliable instruments;—to meet this objection, Mr. Casella has devoted his energies, and we believe with complete success, to the production of instruments of a trustworthy character, fitted for general use, not liable to variation, and at a price that will place them within reach of all. We have tested these instruments ourselves, and have no hesitation in saying they may be fully relied on, and that they are certainly superior to many instruments put forth at a much higher price. We consider that we are rendering especial service to the gardening public in drawing their attention to Mr. Casella's improved meteorological instruments, and shall now offer a few remarks on the proper use of each, with the benefits that the gardener may derive from attention to their indications and the study of the laws that regulate the changes continually taking place in the atmosphere.

THE RAIN GAUGE should be in the hands of every gardener, being an instrument of great importance in ascertaining the amount of rain that has fallen at any given locality. The amount of rain that falls in different places varies greatly, as also it does at the same place at different times, whilst the average of a series of years remains nearly the same. In the management of out-door plants and crops, as well as in the construction of cisterns and tanks for the supply of water, a rain gauge is a valuable assistant. By the use of tables of the mean fall, etc., the cultivator will be guided in judging how far the supply of moisture to the earth is needed, by comparing the former with the indications of the gauge. From the use of this instrument he will also see how beneficial is even a hasty shower to growing plants, when he considers that a fall of rain measuring the tenth of an inch in depth corresponds to the deposit of 2,262 gallons, or about forty hogsheads per acre. There are several forms of this instrument, some more convenient than others. Mr. Casella's consists of a funnel of copper, with a brass rim, accurately turned, and furnished with a pipe and collar fitting it to any large glass bottle, from which the amount of rain fallen is measured off by a glass measure, standing on a foot, and accurately graduated to hundredths of an inch, rendering it very convenient. In placing the rain gauge, a situation should be chosen as exposed as possible, away from the shade of trees or buildings of any kind, so that it may receive the rain freely, for showers, accompanied by driving winds, generally fall in a direction far from the perpendicular. The instrument should also be placed on the ground, as two gauges placed at different heights on the same spot would indicate different results, and uniformity of observation is of first importance. For this reason observers now place their instruments on the level of the ground, or within two or three feet of it.

(*To be continued.*)

NOTES ON NEW AND SELECT PLANTS.

RHODODENDRON WINDSORII. Nat. Ord. *Ericeæ.*—Another of the many handsome Rhododendrons that Mr. Booth has been so fortunate as to discover in Bhotan, where the present species grows on the mountains among Pines and Firs, at an elevation of from seven to nine thousand feet above the level of the sea, and consequently may be expected to be perfectly hardy in this country, as indeed the young plants raised from seeds sent to Mr. Nuttall, of Rainhill, have hitherto proved. The blooms are borne in crowded heads, each flower being about an inch and a half across the mouth, of a rather deep salmon-scarlet; the leaves are from four to five inches long, and about one in breadth; the upper surface a deep, dull green, and the under side light brown. (*Bot. Mag.*, 5008.)

110. UROSKINNERA SPECTABILIS. Nat. Ord. *Scrophularineæ.*—A pretty plant, introduced by the Horticultural Society, and constituting a new genus. Dr. Lindley says—"For this beautiful plant we are indebted to G. U. Skinner, Esq., the most generous of merchants, the most eager of collectors, to whom, or to whose assistance, the botany of Western Mexico and Guatemala owes more than to all the travellers who have visited those regions. Nothing more worthy of his name could well be found, for the plant is very rare, very showy, and now secured to our gardens; we therefore trust that verbal pedants will not quarrel with the manner we have contrived to escape from the difficulty of there being already a *Skinneria* in the botanical field, but agree with us that Ure Skinner may be fairly blended into a name which shall unmistakably record the labours of one who ought never to be confounded with any other Skinner whatever." It is a soft-wooded, erect-growing, herbaceous plant, covered with small hairs. The flowers are produced in close spikes of about twenty or upwards in each, and measure about an inch and a half across the mouth, which is five-lobed; they as well as the tube are of a pale violet-pink colour; the leaves are oblong, rather coarsely toothed, and from two to four inches long, of a dark green tint. It flowers in July, and requires stove temperature. (*Bot. Mag.*, 5009.)

111. EPIGYNIUM ACUMINATUM. Nat. Ord. *Vaccinieæ.*—A very handsome plant of the *Vaccinium* tribe, raised by Mr. Nuttall from seeds received from Mr. Booth, that gentleman's collector in Bhotan. It is rather common in Silhet and other districts of North-western India, and grows at an elevation of from three to four thousand feet, and generally as an epiphyte on trees. It is a shrub, growing from two feet to double that height, the branches leafy towards the extremities; the foliage is deep green, sometimes mottled with purple above, and paler, or with varying tints of purple beneath; from four to nine inches long, lanceolate and acuminate. The blossoms are very small, the corolla being almost globose, and resembling small

berries, which, together with their peduncles, are of a rich coral scarlet, borne in corymbs closely placed along the branches. (*Bot. Mag.*, 5010.)

112. Dendrobium crepidatum; *var.* labello glabro. Nat. Ord. *Orchideæ.*—A very delicate Orchid from Assam, supposed at first to be a new species, but now a recognised variety of *D. crepidatum;* the blossoms are about an inch and a half across, the base of the labellum tinged with rich yellow, and it as well as the extremities of the sepals and petals tinged with delicate blush. (*Bot. Mag.*, 5011.)

113. Agapetes buxifolia. Nat. Ord. *Vacciniaceæ.*—Another of Mr. Booth's discoveries in Bhotan; it is an evergreen shrub or small bush, with a large, tuberous, root-like stem, growing on trees as an epiphyte, at an elevation of two or three thousand feet, where it flourishes in damp forests. The foliage rather crowded, an inch long, somewhat toothed, and obovate, of a bright green; the flowers are tubular, cylindrical, about an inch in length, of a bright shining red, opening into five pointed segments of a more crimson tint, the stamens and pistillum rather prominent. Mr. Nuttall states that he has grown it grafted by approach, on an *Epigynium.* (*Bot. Mag.*, 5012.)

114. Sedum fabaria. Nat. Ord. *Crassulaceæ.*—The native habitat of this pretty stonecrop is the mountainous district of central and western Europe. The plant grows about two feet high, and the stems are near an inch thick at the base; the leaves are produced in whorls of three, and measure three inches in length, by about half as much across. The trusses of flowers are about six inches in diameter, the petals narrow, and the stamens prominent; the colour of its blossoms, pink or pale lilac, with its fine bold habit, contribute to render it a very attractive Alpine. (*Gard. Chron.*, 209.)

NEW AND SELECT GARDEN HYBRIDS.

PELARGONIUM.—Countess of Devon (Veitch).—A new fancy variety under this name is being sent out by Messrs. Veitch and Son, and promises to become a favourite for bedding. The upper petals are bright rosy purple, with a white margin—the lower ones white, with a beautiful spot of crimson lake in each. It is a very free and almost constant bloomer. Received a first-class certificate at the Royal Botanic Society's Show on the 1st July last.

82. Erica Mediterranea, *var.* Alba.—Messrs. Rollison of the Tooting Nursery have obtained a new Heath, a supposed variety of *E. Mediterranea*, with white blossoms, of good habit and profuse bloom.

FLORICULTURAL OPERATIONS FOR NOVEMBER.

IN THE FLOWER GARDEN.

GENERAL OPERATIONS.—*Alterations* in grounds may be performed; choose a frosty day for removing soil, turf, etc. *Border Plants*, as last month. *Climbers*, plant and prune;- Ivy, Virginian Creeper, Clematis, and others may be placed to cover blind walls. *Composts*, collect leaves and cart manures for, turn over in frosty weather; select a sheltered place to deposit them. *Dig and Fork over* all vacant ground, also between the plants in borders, being careful to avoid injury to bulbs or plants that have died down. *Evergreens* plant in open weather; those in pots may be plunged into vacant beds or borders, which will serve as a protection to the roots of many kinds, and contribute greatly to the appearance of the garden at this season. *Grass* may be cut for the last time, and should be done closely; sweep lawns and remove leaves, etc., to the compost heap. *Hedges*, plant and trim; where naked at bottom, cut down and clear out. *Hoe and Rake* in the shrubbery, and remove the leaves and refuse to the compost heap, or bury them between the plants. *Planting* may be done generally in open weather. *Prune* as required. *Shelter* such half-hardy or tender plants as cannot stand our winters with impunity, *fern, mats*, and *straw* coverings should be in readiness. *Shrubs* plant, mulch, and place stakes to tall ones, that they may run no risk of being twisted by winds. *Walks*, sweep and barrow off the leaves; new ones may be made, all carting operations are best done in frosty weather, when the ground is firm and hard.

CULTURAL DEPARTMENT.—*Alpines and Rock-plants*, keep clear from leaves and refuse; such as are rather tender may have the protection of a covering of fern, etc. *Anemones*, plant, see last month's instructions. *Biennials and Perennials*, cut down decayed stems, and divide or plant as requisite. *Bulbs*, these may be planted for a succession. *Chrysanthemums*, look over the plants, and take note that all are correctly named whilst in bloom; fresh label them, and procure new kinds while you have the opportunity of seeing them in bloom. *Dahlias, seed*, when not cut off by frost, will now be perfected; spread the heads to dry in a temperate or airy place, turning them over occasionally to prevent mould; when preserved in the heads until wanted for sowing, the seeds keep fresh and plump. *Plants*, before frost occurs let the main stems be protected with a cone of leaves or other dry material, to the height of eight or nine inches, covering it with a sprinkling of soil to prevent its being blown away; soil alone is better than no protection of the kind, but the drier it is the better. As soon as the tops are destroyed by frost, cut them down, so that the main stem is left about two feet long from the crown of the root, retaining a few inches of the main branches; this allows for gradual evaporation, and avoids the injury so generally resulting from cutting the stems close down at the time of taking up. When the stalks have somewhat dried (which will be in three or four weeks), then cut them back to about three inches in length. Dahlias should be carefully taken up, and, if available, remove them to a place where they may be dried with a little heat. In a propagating house of mild temperature, just excluding frost and cold air, we have placed thousands of roots, and do not recollect having sustained the loss of even one, although we have kept them here all fully exposed during the period of rest. *Hollyhocks*, slugs are great enemies to these plants, guard against them, those in the open ground which were earthed up should be searched over, and, this being done, lay a good sprinkling of soot and lime round them; it may be renewed occasionally during winter. *Hydrangea*, to prevent injury to those planted out of doors, give a covering of dry leaves several inches deep to plants pruned within a short distance of the ground, such being concealed by a box; to plants that are two or three feet high, an ornamental wooden stand for a vase, or something of that description, suited for the locality of the plant, answers admirably, being removed in spring. *Mirabilis*, take up and store after the manner of Dahlias. *Pinks*, see last month's directions. *Pæonies, Herbaceous*, the stems of those that have had a box or pot placed over them may now be cut off level with the top; they will be found furnished with roots throughout the whole depth of the box. Cut the stems into lengths, each having a bud and some roots; placed in good soil, two inches deep, they will each produce a new plant, and not be killed by frost. Herbaceous Pœonies may also be propagated by division of the root, in such cases, however, the plants are much longer before they flower. *Polyanthuses*, should be protected by tiles placed over them; the stock in pots, where no frame is available, should be placed in a situation where they may receive as much sun as possible until March, having them plunged to the rim of the pot in ashes, and protecting them by a covering of canvas over hoops in wet or severe weather. Protect them also from birds, by means of a net over the hoops, or the tender leaves of the crown will be picked out. *Ranunculuses*, may still be planted for early spring bloom. *Roses*, this is a good time for removing and transplanting them. The compost most suited to them is two-thirds of turfy loam, and one-third well-decomposed manure. When beds are to be planted, the ground should be deeply trenched, and afterwards a good dressing of manure should be applied. A small quantity of the compost recommended should be added round each plant. If a piece of ground be set apart for the cultivation of Roses exclusively, a situation should be chosen as open as possible, and if wet, drain it; trench as deep as the soil will permit. The beds may then be formed according to taste, and the planting proceeded with as above directed. It is not advisable to prune at the time of planting. *Rose Stocks*, transplant stocks of the common Dog Rose from copses and hedges for budding on next season, those should be selected that are straight and vigorous, and should be cut down to the height required at the time of planting. *Stocks, Queen*, those in beds should be hooped over and matted up in severe weather, uncovering them when fine. Those in patches in the flower border may be protected by branches of spruce fir or fern stuck round them, in the absence of other shelter, when the weather is severe. *Trees and Shrubs*, hardy flowering ones in pots should be plunged in a dry, warm situation, to prevent their roots being injured by frost. Place dry leaves, covered with soil, to protect the roots of newly planted choice trees and shrubs, and stake them to prevent injury by rough winds. *Tulips*, plant; the best time is during the first three weeks of the month, a little sand should be placed at the bottom of each hole, and a little over the bulb; the beds should be raised a few inches in the centre so as to throw off a large amount of the wet that may fall on them, and the situation should be one that is well drained.

IN THE GREENHOUSE, COLD PIT, AND FRAME.

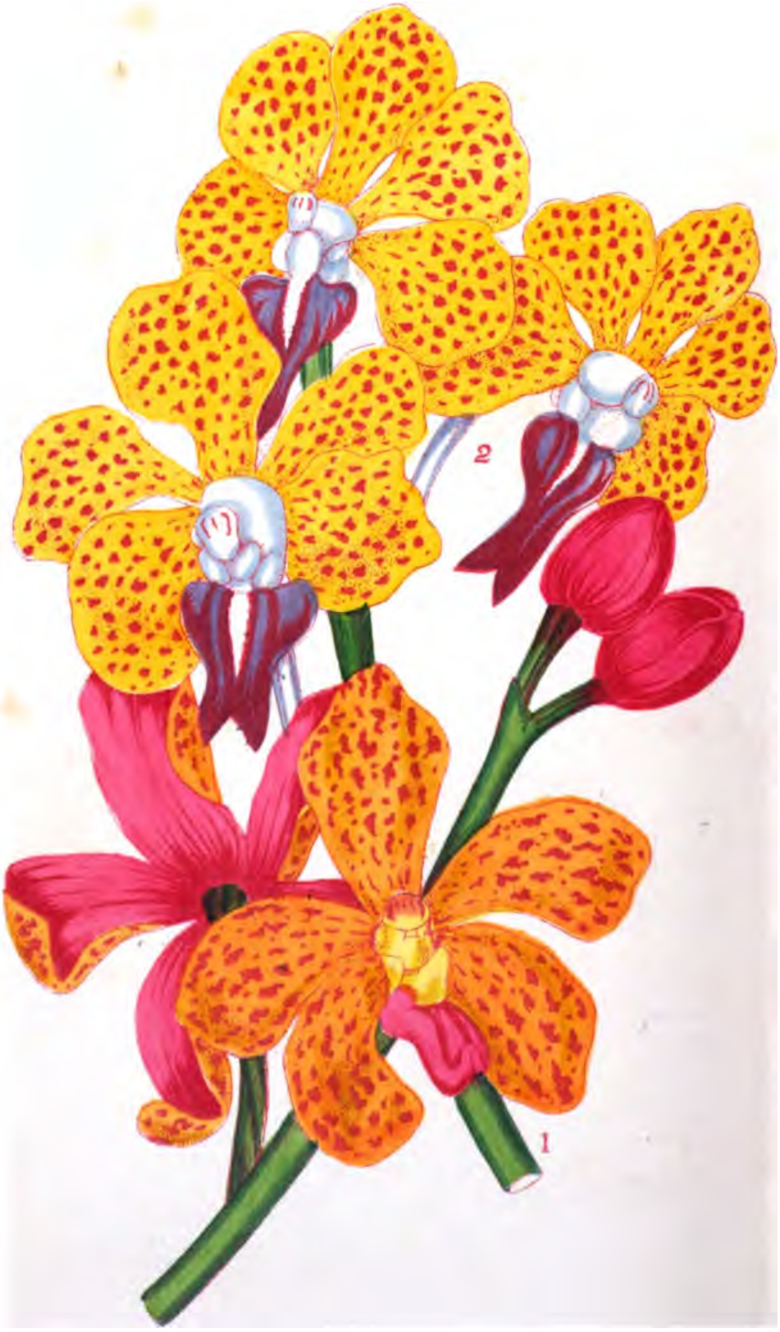
GENERAL OPERATIONS.—*Air*, as last month. *Cleanliness* is of first importance to the plants, nothing promotes their health more than scrupulous attention in this respect during winter; it prevents damp, as well as the spread of fungus and insects. *Damp*, guard against, a free circulation of air is the surest means. *Fires* will require to be attended to, especially if frost appear likely. *Fumigate*, to keep down insects. *Plants*, keep clean, wash the pots, and top-dress from time to time; look over the collection and label afresh, nothing looks worse than green, illegible labels. *Temperature*, keep the greenhouse about 45°. *Water*, use sparingly, except to plants whose buds are swelling.

CULTURAL DEPARTMENT IN THE COLD PIT AND FRAME.—*Alpines*, as last month. *Auriculas*, be cautious in giving water, and see that the stock is kept clean; give them plenty of air. *Bulbs*, pot in succession for spring flowering. *Carnations and Picotees*, preserve them carefully from heavy rain or drip, which is a sure cause of spot on the leaves; should this appear, remove it by cutting off the leaf immediately with a pair of sharp scissors. Give a free circulation of air, which is the only preventative of this destructive pest. Some varieties are more liable to spot than others. *Cinerarias*, allow them plenty of air to prevent damp, and continue shifting; to keep down green fly fumigate, and if mildew appear dust with sulphur. *Ferns*, require but little water at this season. *Hollyhocks*, attend to propagation, and pot those already struck. Water should be given in the morning so as to get the frame dry before closing it up in the evening; this must be borne in mind during winter, remembering that damp is the greatest destroyer of Hollyhocks. *Hyacinths, forcing*, when they are required to flower about Christmas, take them out of the frame or pit (see operations for September) in the course of this month; it is better, however, for them to remain in the sawdust until January, when the pots will be filled with roots, and the flower-

VITALITY OF SEEDS.—At the late meeting of the British Association held at Dublin, Professor Daubeny read the report of the committee appointed to investigate the vitality of seeds, in which the Professor alluded to the circumstances which called the committee into existence, and stated that after planting year after year all the seeds they were able to collect, they had now left but four species of plants whose seeds continued to grow. These were species belonging to the genera Ulex, Dolichos, Malva, and Ipomœa. He exhibited a register in which every experiment as performed by Mr. Baxter, of the Botanic Garden, was detailed. From this register it would be seen that the shortest period for which any of the seeds had retained their vitality was eight years, and the longest forty-three years. Grouping the plants according to their natural orders, the following selected will give some idea of the plants whose seeds retained their vitality longest:—Gramineæ, eight years; Liliaceæ, ten years; Coniferæ, twelve years; Tiliaceæ, twenty-seven years; Malvaceæ, twenty-seven years; Leguminosæ, forty-three years; Rhamnaceæ, twenty-one years; Boraginaceæ, eight years; Convolvulaceæ, fourteen years; Compositæ, eight years; Myrtaceæ, eighteen years; Umbelliferæ, eight years; Cruciferæ, eight years.—Dr. Steele stated, that he had planted many seeds obtained from Egyptian mummies, but *always* failed to obtain any indications of their vitality. —Mr. Moore, of the Dublin Botanical Garden, related an instance in which he had succeeded in producing a new species of leguminous plant from seeds obtained by Mr. Ball from a vase discovered in an Egyptian tomb. He also stated that he had picked from out of the wood of a decayed Elm, at least fifty years old, seeds of Laburnum, many of which had germinated when planted, and produced young trees. He had once grown a crop of young Barberry trees by planting a quantity of Barberry jam, which proved that the process of preparing the jam did not injure the seed. Many seeds grew the better for being placed in boiling water before they were set.—Dr. Daubeny stated that seeds did not retain their vitality whilst entirely excluded from the air; that, in order to keep them well, they should be wrapped up in brown paper, or some other porous material.—*Gard. Chron.*

ARDISIA CRENULATA.—This is a very ornamental little plant, of greenhouse shrub, that may be readily managed as a window-plant. In February, its berries, a great ornament, are in perfection; the plant being, at that time, covered with a profusion of its coral-like fruit that hang in small clusters beneath and among the leaves, and which, retain the brilliancy of their colour for a great length of time. Even without the berries it is a very beautiful plant for a room, having long serrated leaves of a fine glossy green. *Ardisia crenulata* will grow very well either in a cold room or one where there is a fire, and should receive a supply of water frequently, until the commencement of April, after which it may have it every day. This, like all other plants with shining leaves, soon shows the dust; it is, therefore, a good plan to sponge the leaves once a week, by which means it will always be a gay and lively ornament for the sitting-room, and its health will, at the same time, be promoted. A mixture of loam and peat soil is found to grow it well.—*G. G.*

MANURE-WATER FOR POT-PLANTS.—Many—indeed most—plants grown in pots may, at particular periods of the growth, be advantageously treated with liquid manure; these periods are chiefly during the time of making vigorous growth, and of blooming. Inexperienced persons, however, are liable to do material injury from using it too strong or too often; or they fall into the other extreme, and derive no benefit from the application. A very useful liquid manure for pot-plants may be made by putting the following ingredients into a hogshead of rain-water:—Two pecks of sheep or fowls' dung, one peck of soot, and two quarts of Potter's guano; these ingredients are first to be well mixed up to the consistency of paste with boiling water, and then mixed with the cold water. Stir the mixture frequently for a day or two, and then throw in a quart of quick lime; when the liquid has become clear it is fit for use. For all strong growing plants this may be used daily, or every other day, applying it diluted with about one-third of clear water. For Heaths, and similar delicate-rooted plants, and even for Orchids, it will prove beneficial; but to these should not be given oftener than once a week. As before observed, it is only to be used—at least by the inexperienced—during the periods of growth and blooming.—*The American Horticulturist.*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The Floricultural Cabinet.

DECEMBER, 1857.

ILLUSTRATIONS.

1.—VANDA BATEMANNI.

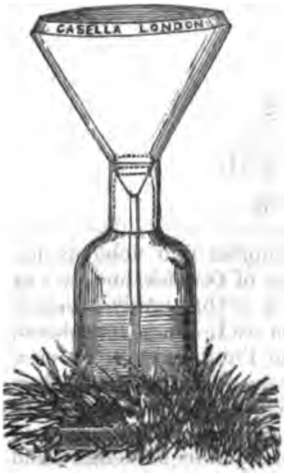
2.—VANDA TRICOLOR.

OUR illustrations this month comprise two noble plants belonging to the splendid family of *Orchids*, and to one of the most magnificent genera in that lovely group of plants, namely the *Vandas*. Figure 1, *Vanda Batemanni*, is a native of the Moluccas and Philippines, introduced a few years back by Mr. Cuming; it is a large, free-growing species, with remarkably thick ærial roots, and hard sword-shaped leaves two feet long. Its handsome blossoms, to which the size of our plate prevents our doing justice, are borne in a spike of equal length, and number some scores on each spike, and measure fully two inches and a-half across, of a rich, deep golden yellow, blotched and spotted with crimson on the face, whilst the back of the flowers and the flower-buds are a bright rosy-purple, so that, viewed in any position, they form strikingly handsome objects. Figure 2, *Vanda Tricolor*, the three coloured *Vanda*, is one of the many fine plants introduced by Messrs. Veitch and Son, through their collector, Mr. Thomas Lobb, from Java, and is even a more beautiful species than the foregoing. Its lovely blossoms are of a paler yellow than *V. Batemanni*, more regularly spotted with bright crimson, and the under sides white or pale blush. It is a somewhat moderate grower, and bears long drooping racemes of its noble flowers. These fine tropical epiphytes require to be grown fixed to blocks of wood or stumps of trees in a warm Orchideous house, and during their season of growth the atmosphere should be kept warm and moist, and gradually reduced when it is observed that the points of the roots cease to elongate, a certain indication of a cessation of the season's growth.

METEOROLOGICAL INSTRUMENTS FOR GARDENERS.

(*Continued from page* 305.)

TO, give our readers a better idea of Mr. Casella's new rain gauge, we are enabled to introduce a figure of it, for which we are indebted to that gentleman.

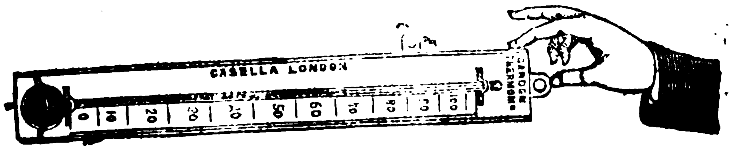


Casella's Rain Gauge.

From a long series of observations it is found that the greatest average quantity of rain falls in October and the least in February, but the heaviest rains, or those that yield the greatest quantity in the gauge, come down in the summer and early autumnal months. In the summer an inch and a half will sometimes fall in less than an hour, in short and impetuous torrents; in the autumn the same quantity will occupy many hours in falling. In winter the number of wet days exceeds that of the summer period; the average fall of a winter's rain is seldom more than one-tenth of an inch an hour.

Snow yields one-tenth of water to one inch fall in depth; or a fall of snow of ten inches in depth on the level would be equal to the deposition of one inch of rain.

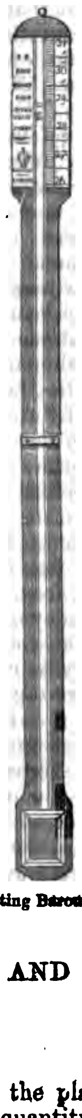
Registering Thermometers.—These instruments are so contrived as to show the extremes of heat and cold day or night, and are therefore particularly useful as a check upon the working gardeners, who have to attend to houses or pits heated in any manner. They are also very useful in the open air, by pointing out the extremes of temperature. The minimum thermometer is for the purpose of shewing the lowest temperature, or greatest degree of cold—the maximum the greatest degree of heat.



Cassela's Garden Thermometer—Minimum.

Mr. Casella has supplied a want that has been long felt, namely a low priced yet efficient minimum thermometer, not in the least liable to get out of order, which may, also, if desired, be used vertically as a common thermometer. We have tested the instrument ourselves, and are enabled to speak in high terms of the accuracy with which it is adjusted. A maximum thermometer by the same maker is an exquisite instrument; the two should be used together, and their price places them within the means of all.

THE BAROMETER has been recently brought out in a cheap form by various makers; we have purchased a few in order to make a trial of their merits, and feel justified, after testing them, in awarding the palm of excellence to those offered by the eminent maker above named; the indications correspond closely with those of a standard instrument so far as they are capable of being measured, which, although not with the minute precision of more expensive barometers, can still be done quite near enough for all useful purposes. For ourselves we have never been able to see the utility of carrying on a system of such very minute and exact readings—the main thing is to observe the rise and fall, with the height of the column, and at most to two places of decimals. In Mr. Casella's Improved Compensating Barometer this can be done after a little practice; and although the tubes appear narrow when compared with higher priced instruments, they will be found to work well, and as such we feel no hesitation in recommending them as reliable ones. In bringing these instruments before the public Mr. Casella has endeavoured to meet the want, too long felt, of cheap yet reliable and useful "weather glasses," and in this he has certainly succeeded. We trust his exertions may be properly appreciated, and wish these instruments were, as they ought to be, in the hands of all good gardeners.



Casella's Compensating Barometer.

LEAVES AND ROOTS, THEIR FUNCTIONS AND STRUCTURE.

BY CLERICUS.

(Continued from page 268.)

ASSUMING, then, that all the carbon of the plants is derived from the atmosphere, and that a quantity of this constituent is required, not only for the due evolving of the leaves and wood, but for their subsequent nourishment, it follows that a certain portion of this necessary ingredient must be contained in the ascending sap; and, if so, it is also evident that it must be carried into the ascending sap vessels by means of the centre vessel, which I have already described as running the whole course of the rootlet, and traversing the thickness of the bark of the root, until it joins the beforementioned ascending vessels. The extending coat of the rootlet is, as I have already stated, given off from the external coat of the root, and, consequently, the proper juice of the plant in the root, and given into the rootlet, is, in the latter, exposed to the action of the atmospheric air and the water contained in the soil; and thus, being modified and diluted, it enters the centre vessel in a fit state for the due nourishment of the plant. To confirm these views let us look at a grafted tree—here we see on the same stock a variety of fruit; now on what does this depend? The answer will be, on the scion or bud introduced; in that scion is contained the germ of young leaves, which, by the nourishment supplied by the stock, are evolved, and then commences, according to *the character of the leaf*, the elaboration of the proper juice for that particular variety of fruit. Again, let us look to the fact of the maple affording its sugar from the concentrated juice of the former year, and giving it out whenever the sap begins to ascend, and before any leaf has yet appeared. At the same time it is known that if the tree be bled too much, it destroys the luxuriance of the vegetation for that season. Again, also, let us watch the progress of the young fruit tree—deriving the nourishment required, in the first place, from the immense accumulation of vegetable matter in the cotyledons, the root of the young plant thrusts itself into the earth, and the young leaves unfold themselves to the atmosphere. Year after year crops of leaves follow each other in succession—each leaf performing the important function assigned to it, of assimulating a portion of the sap in the progress of its circulation into the proper juice of the plant, which when done it dies and falls off. Our plant gains strength with every successive season, its leaves are, to a certain point, thrown out stronger and larger, and in due time, the tree is capable of bearing fruit. With the first appearance of the leaves of the following season, it is decked with flowers, succeeded by fruit. Such is the progress of a tree, from its first germination to maturity; and here we see the great importance of the leaves in maintaining the plant. If our plant is puny, its branches slender, and its leaves wanting in luxuriance, we cannot look for fruit; and in this case, what is our remedy? We apply the pruning knife; and thus by concentrating the ascending sap, instead of being distributed over a large surface, through many long branches, we give energy to the plant, and leaves and flowers burst forth in great luxuriance. It is on this principle that Dr. Klotschs attempts the cure of the potato disease, "to pinch off about half an inch from the top of the plant, when it has reached a height of six or nine inches, and to repeat the same operation, ten or eleven weeks after the time of planting, on all the stems of the plant." By this operation, the carbon of the plant is not again expended in the production of new stems and fruit, but is thrown into the tubers, producing potatoes of firmer texture, and more concentrated material. All are aware that plants are formed of organic and inorganic constituents—the organic are the woody fibre and the juices of the plant—the inorganic are the earthy and alkaline substances found there, as silica, potash, soda, etc. The organic constituents can all be resolved into the following elementary substances, namely: carbon, hydrogen, nitrogen, and oxygen. Now we have seen that the carbon and nitrogen have been derived from the atmosphere. The hydrogen and oxygen, the constituents of water, are, of course, derived from the rain which percolates through the earth. The inorganic are also taken from the earth. It is evident then, that the inorganic constituents must be found there; and if they be not there naturally, they must be supplied artificially. This is the true theory of manuring, viz., to enrich the earth so that it may be loose; that atmospheric air may permeate, and the rain percolate through it, allowing the tender fibres or rootlets free access to every part, and to supply the inorganic constituents required. Hence we see the great advantage to be gained by the admixture of any light substance, such as stable litter and other light manures, lime, ashes and other materials, where the soil is of a close nature.

In conclusion, I have attempted, in the remarks I have made, to elucidate the great importance of the leaves and rootlets of a plant, as the organs necessary for its proper development, and the maturing of its fruit. That the leaves may perform their functions in a satisfactory manner, light or sunshine, and atmospheric air are necessary, and should be freely admitted; while to allow the rootlets to perform theirs, heat, moisture, and atmospheric air are indispensable. Whatever tends to deprive the leaf of light, retards its assuming its proper tint or colour, and the plants, in consequence, lacks vigour. Strip a plant of its leaves, and prevent their further development, and it will die. So likewise, unless the rootlets enjoy freedom of extension, a sufficient supply of moisture, and atmospheric air, the plant will droop and wither. Deprive it of its rootlets and it will die. These are facts no doubt familiarly known to all, they are, nevertheless, worthy of our study and attention.

ON GARDENIA FLORIDA.

BY MR. JOHN HARRISON, LATE GARDENER AT SYSTON PARK.

SOME years ago, when the late Mr. Colville, nurseryman of Chelsea, was in the habit of furnishing plants on a most extensive scale for the routs and balls of the nobility and gentry at the west-end of London, the *Gardenia florida* was grown by him in vast numbers, whole pits being devoted to them; and so great was the demand for plants and cut flowers, that Mr. Colville thought he could never grow a sufficiency. Possessing a delicious scent, and much beauty, both of blossom and foliage, a well-grown specimen makes a highly-attractive object, and has always rendered it a particular favourite with me, and a plant to which I have devoted a large share of attention, so much so, that when a young and enthusiastic cultivator, I prided myself on the specimens that I produced. My treatment was this:—Early in spring strong young shoots were taken off and put into forty-eight sized pots, one-third filled with broken crocks; the compost consisted of equal portions of peat and loam well mixed together, over which was laid about two inches of fine sand. The cuttings were neatly trimmed, all the lower leaves being taken off, and firmly inserted round the edge of the pot, and then well watered, after which they were placed in gentle bottom heat, plunged up to the rims in the frame or pit. In a very little time they made nice roots, and were potted off singly into small forty-eights, using a mixture of one-third good rich loam, one-third leaf mould and peat, and one-third of old decayed hot-bed manure. After potting, the young plants were returned to their former quarters for a week or two, in order to obtain the stimulus of bottom heat, and then hardened off. When the pots were filled with roots the plants were shifted into thirty-twos, and finally into twenty-fours. One great point was to prevent the plants coming into bloom until thoroughly established in the larger pots, therefore, as the flowers appeared they were pinched off, which gave the plants great strength, and induced the formation of fine bushy heads. When it was desirable to have the plants in bloom they were removed into the pit, and placed on the tan or leaves until the bloom appeared; taking care at all times to give them plenty of air and gentle waterings, in order to keep the plants in a healthy growing state. Under this plan of treatment I have had noble specimens, and a profusion of bloom that has created surprise in the minds of all who have seen them, and almost surpassing belief.

NOTES OF A BOTANIST IN THE HIMALAYAS.

INTELLIGENCE of the progress and state of gardening in our colonies is at all times of the highest interest, not only as showing the advancement of the science abroad, but also from the information that is afforded us of the success or otherwise of the attempts to grow and acclimatise those plants that we are familiar with in our own gardens, and the result of high cultivation applied to the indigenous plants. The following interesting remarks on the Botanic Gardens of Bhagulpore, in Upper India, are from the pen of that very enterprising and scientific botanist, Dr. J. D. Hooker, now attached to the splendid establishment at Kew, from whose "Himalayan Journals" we have also given a few brief extracts, to show the wonderful character and amazing fecundity of the vegetable products of that hitherto imperfectly known region. Dr. Hooker states—"To me the most interesting object in Bhagulpore was the Horticultural Gardens, whose origin and flourishing condition are due to the activity and enterprise of the late Major Napleton, commander of the hill-rangers. The site is good, consisting of fifteen acres, that were, four years ago, an indigo field, but now form a smiling garden. About fifty men are employed; and the number of seeds and vegetables annually distributed is very great. Of trees, the most conspicuous are the tamarind, *Tecoma jasminoides*, *Erythrina*, *Adansonia*, Bombax, teak, banyan, peepul, *Sissoo*, *Casuarina*, *Terminalia*, *Melia*, *Bauhinia*. Of introduced species there are English and Chinese flat peaches (pruned to the centre to let the sun in), Mangos of various sorts, *Eugenia Jambos*, various *Anonas*, Litchi, Loquat, and Longan, oranges, *Sapodillo*, apple, pear, both succeeding tolerably; various Cabool and Persian varieties of fruit-trees; figs, grapes, guava, apricots, and jujube. The grapes looked extremely well, but their management requires great skill and care. They form a long covered walk, with a row of plantains on the west side, to diminish the effects of the hot winds; but even with this screen, the fruit on that side is inferior to that on the opposite trellis. Numerous cerealia, and the varieties of cotton, sugar-cane, etc., all thrive extremely well; so do many of our English vegetables. Cabbages, peas, and beans, are much injured by caterpillars. Raspberries, currants, and gooseberries will not grow at all. Excellent coffee is grown; and arrow-root, equal to the best West Indian, is prepared at 1s. 6d. per bottle, of twenty-four ounces—about a fourth of the price of that article in Calcutta.

"In most respects the establishment is a model of what such institutions ought to be in India; not only of real practical value, in affording a good and cheap supply of the best culinary and other vegetables that the climate can produce, but as showing to what departments such efforts are best directed. Such gardens diffuse a taste for the most healthful employments, and offer an elegant resource for the many unoccupied hours which the Englishman in India finds upon his hands. They are also schools of gardening; and a simple inspection of what has been done at Bhagulpore is a valuable lesson to any person about to establish a private garden."

Dr. Hooker gives the following account of the botanical productions, etc., at the base of the outer Himalaya:—"Every feature, botanical, geological, and zoological, is new on entering this district. The change is sudden and immediate; sea and shore are hardly more conspicuously different; nor from the edge of the Terai to the limit of the perpetual snow is any botanical region more clearly marked than this, which is the commencement of Himalayan vegetation. A sudden descent leads to the Mahanuddee, flowing in a shallow valley, over a pebbly bottom; it is a rapid river (even in April), its banks are fringed with bushes, and it is as clear and sparkling as any trout stream in Scotland. Beyond it the road winds through a thick brush-wood, choked with long grasses, and with but few trees, chiefly of *Acacia*, *Dalbergia Sissoo*, and a scarlet-fruited *Sterculia*. At this season only a few spring plants were in flower; leaves of terrestrial Orchids appeared, with ferns and weeds of hot damp regions. I crossed the beds of many small streams; some were dry and all very tortuous; their banks were richly clothed with brush-wood and climbers of Convolvulus, Vines, Bignonias, etc. After proceeding some six miles along the gradually ascending path, I came to a considerable stream, cutting its way through stratified gravel, with cliffs on each side fifteen to twenty feet high, here and there covered with ferns, the little *Oxalis sensitiva*, and herbs of various kinds. The road here suddenly ascends a steep gravelly hill, and opens out on a flat or short spur, from which the Himalayas rise abruptly, clothed with forest from the base; my immediate destination, the little bungalow of Punkabaree, nestled in the woods, above which, as far as the eye could reach, were range after range of wooded mountains, 6000 to 8000 feet high. The ascent to Punkabaree is sudden and steep, and accompanied with a change in soil and vegetation. A giant forest replaces the stunted and bushy timber of the Terai Proper; of which the *Duabanga* and *Terminalias* form the prevailing trees, with *Cedrela* and *Gordonia Wallichii*. Smaller timber and shrubs are innumerable; whilst a succulent character pervades the bushes and herbs, occasioned by the prevalence of the nettle tribe. Large bamboos rather crest the hills than court the deeper shade, and of the latter there is abundance, for the torrents cut a straight, deep course down the hill flanks; the gulleys are choked with vegetation and bridged with fallen trees, whose trunks are richly clothed with orchids, pendulous *Lycopodia*, and many ferns. * * * At about 1000 feet above Punkabaree, the vegetation is very rich, and appears all the more so from the many turnings of the road, which afford glorious prospects of the foreshortened tropical forests. The prevalent timber is gigantic, and scaled by climbing *Leguminosæ*, which sometimes sheath the trunks, or span the forest with huge cables, binding tree to tree. Their trunks are also clothed with parasitical Orchids, climbing Pothos, Peppers, Vines, Convolvulus, and Bignonias. The beauty of the drapery of the Pothos leaves is pre-eminent, whether for the graceful folds the foliage assumes, or for the liveliness of its colour. Of the more conspicuous smaller trees, the wild banana is the most abundant, its crown of very beautiful foliage contrasting with the smaller-leaved plants amongst which it nestles; next comes a screw-pine (*Pandanus*) with a straight stem and a tuft of leaves, each eight or ten feet long, waving on all sides. Bamboo abounds everywhere; its dense tufts of culms (or stalks), 100 feet high and upwards, are as thick at the base as a man's thigh. Twenty or thirty species of ferns (including a tree-fern) were luxuriant and handsome; while foliaceous lichen and a few mosses appeared at 2000 feet elevation. Such is the vegetation of the roads through the tropical forests of the Outer Himalaya."

NOTES ON HARDY EVERGREENS.

BY CLERICUS.

(*Continued from page* 216.)

No. III.—The Juniper Tribe.

JUNIPERUS COMMUNIS, Common Juniper.—Well known; the leaves spreading in threes; berries rather long, purple or black; flowers having much whitish pollen. Height from six to twelve feet. Inhabits Europe, North America, and Asia. This shrub is of slow growth, and endures for a very considerable time, and is excellently adapted for hedges. The wood is aromatic, and finely veined.

J. oxycedrus, Brown Berried Juniper.—Leaves in threes, spreading, shorter than the berries; flowers in May and June. From Spain and Portugal, where it attains from ten to twelve feet.

J. macrocarpa, Large Fruited Juniper.—A handsome evergreen from Greece; attaining a height equal to the preceding species, which its leaves also resemble, but the berries are twice as large and covered with a violet bloom; supposed to be only a variety of *J. oxycedrus*.

J. Virginiana, the Red Cedar.—Another well-known member of this beautiful family; the leaves in threes, imbricated when young; fruit small, dark blue, ripe in October and November. Height from thirty to forty feet; in North America, its native country, ten feet higher. Its rate of growth is slow after the first few years, but this is of advantage in limited grounds, and the plant makes a very handsome appearance on a lawn. The common name, red cedar, has been given with reference to the heart wood, which is, when polished, of a fine red, and is used in the manufacture of lead pencils—the outer wood is quite white. It inhabits Maine and southward to Georgia, in the United States.

J. Sabina, the Savin.—A low-growing or procumbent shrub; the leaves opposite, imbricated, oval and rather pointed; the berries black, ripening the following spring. From the south of Europe, whence it it was introduced to this country more than three hundred years back. The Savin makes an excellent undergrowth, and looks well in the foreground of a shrubbery. It will flourish in even the poorest soil.

J. Phœnicea, Phœnician Juniper.—Leaves in threes, very small on the young branches, imbricated, closely covering them like scales; berries pale yellow or greenish. A fine shrub from the south of Russia, and around the Caspian sea; but deserving of more general cultivation than it has received hitherto.

J. thurifera, Spanish Juniper.—Inhabits Spain and Portugal, and sometimes attains a height of thirty feet. The leaves are imbricated, overlapping each other like scales, in four rows up the young branches; the berries are large and very black. It forms a handsome shrub, and looks well on the lawn. Cuttings strike readily.

J. excelsa, the Tall Juniper.—Remarkably handsome, forming a rather tall-growing, erect, and upright shrub or small tree of from thirty to forty feet high. The branches are slightly pendant; leaves opposite, in four imbricated rows. It is tolerably hardy, but at present little known. Grows in the Himalayas, Siberia, and North America, from whence we first received it in 1806.

J. Chinensis, Chinese Juniper.—Introduced from the country which name it bears in 1820. It grows about fifteen feet high, and looks very pretty when well grown. The leaves imbricate, and short; berries bluish black, ripe in the month of November.

REMARKS ON CONSERVATIVE WALLS.

BY A NOBLEMAN'S FLOWER GARDENER.

MANY plants, both greenhouse and some that require a higher temperature, and especially the deciduous ones and those of rapid growth, will succeed admirably when planted out of doors during the summer, either as standards or against a wall with an exposure to the south; and these not only grow and occasionally flower during summer, but if allowed to remain through the winter with sufficient protection they will grow vigorously, and live for many years, blooming each successive season. Trained neatly along a wall out of doors they have a better appearance than in the house, and have the full benefit of sun and air, which is, to them, as to almost all plants, a great benefit. Walls used for this purpose, and fitted up for the attachment of a proper protecting material in winter, are called "conservative walls," and are comparatively one of the later inventions of ingenious gardeners of the new school. They rank next to conservatories, and form most interesting appendages to a good flower garden. There are many situations in which a wall may be made available for this purpose by the amateur; the gable end of a house, or a wall that is, perhaps, at present occupied by nothing better than ivy or the commonest creepers, may, for a small outlay, be converted into a conservative wall, on which he may train some of the most beautiful objects comprised in Flora's wide domain, and have an attraction far superior to that which he now possesses. The conservative wall may also in some degree be considered as a substitute for the conservatory, to be made use of by persons whose income will not allow them the indulgence of so great a luxury. To assist these, I have thrown together the following hints, which I hope may be serviceable:—In the construction of such a wall the first thing to do is to form a suitable border, on which success in a great measure depends. It is necessary to know the nature of the subsoil—if this be very close and wet, let the earth be removed to the depth of at least a yard, and lay some coarse material at bottom, covered with sifted gravel as a drainage—broken bricks is as good as anything, with gravel or cinders over it, and about a foot in depth. A good drain should always be made, and should be three feet deep, to carry off the moisture from the bottom; for this purpose it should have a rather steep inclination; and where the wall is of considerable length, other cross drains will prove of the greatest benefit. The border may then be filled in, and should be about two feet deep by six feet in width. The compost is best made up of one-half turfy loam, one-fourth peat, and one-fourth leaf mould and rough sand well incorporated. After making the border it is necessary to construct a trellis on which to train the plants, which is much preferable to training them on the bare wall. For this purpose laths or slender wooden rods, painted green, look well, although a wire trellis is neater, more durable and about the same expense in the end. To form a wire trellis, let stout wires be stretched at intervals of four feet apart, vertically from top to bottom of the wall, and across these run thinner wires parallel with the ground, at one foot distance; hooks driven into the wall serve to hold the wires. The stout wires may be of the size known as No. 10, and the thin ones No. 16. For a protecting material I have seen nothing that answers better or has a neater appearance than canvas screens, on rollers; a broad coping of stone or a wooden one laid over will serve as an additional protection, and to this the rollers may be attached.

The plants should be put in carefully, and arranged in a judicious manner; the evergreen kinds for the sake of effect mixed with the deciduous, and placed according to the space they are likely to cover and the height they attain. The dwarfer should be placed to occupy the vacancies between the stems of taller growing sorts that are frequently bare towards the root. After they are planted they will require careful training and tieing to the wires. Concerning management, there are but a few points to be attended to;—one is to keep the plants screened from sun as long as there is any danger of frost, so that they may not be excited into growth until the middle of April, after which the more warmth and light admitted to them the better. During hot and dry weather syringing in the evening is very beneficial, after the sun is off the wall. As winter approaches, lay over the border a dressing of good leaf mould, which should then be forked lightly in, and next protect the roots with a covering of peat or heath soil to the depth of a couple of inches, which will generally be found quite sufficient. When the weather is severe however, straw, or, what is better, fern may be spread along the bottom of the wall and around the roots. If a warm, or flued wall can be made use of, it will enable the possessor to command a temperature that will preserve many beautiful climbers through the winter that he could not otherwise grow—although there are a great number of fine things that will do well under a canvas screen alone. From the following list a good selection may be made:—

Aloysia citriodora.
Bignonia radicans.
Camellias.
Ceanothus azureus.
Chimonanthus grandiflorus.
Clematis, many kinds.
*Clianthus punicens.
Coronilla glauca.
Daphne odora.
——— Indica rubra.
Fabiana imbricata.
Forsythia viridissima.
Fuchsias.
Jasminum nudiflorum.
Myrtus.
Olea fragrans.
Passiflora cœrula.
——— incarnata, and others.
*Plumbago Capensis.
*Sollya heterophylla.
Solanum crispum.
*——— Jasminoides.
Tropœolum pentaphyllum.
*Veronica Andersoni.
Vestia Lycioides.
Weigelia rosea.

Those marked * succeed best with a little heat, by means of flues, in the depth of winter, although in the southern counties they will do very well without it.

To fill up vacancies towards the lower part of the wall Salvias, Fuchsias, Chrysanthemums, Tea Roses, and many other plants of a like nature may be made use of.

ON THE TREATMENT OF SUCCULENTS.

BY MR. WILLIAM GRAY, PECKHAM.

THE cultivation of this class of plants, until within a few years past, was not favoured by many since the time of Dillenius and Lee. However, succulents have again begun to occupy the attention of the cultivator. As a class they are curious in habit, as well as beautiful in flower, and may in some degree be said to resemble orchids in this respect, whilst their cultivation is attended with far more ease and much less cost. Succulents may be grown in situations where but few other exotic plants would flourish, and require much less trouble and attention in their management; they seldom require to be re-potted, and can live for a long period with little or no moisture, without sustaining any injury. Even of the most tender there are few that will suffer in a temperature as low as forty-five degrees; requiring therefore but little heat. They may be said to be the most easily cultivated of any plants, and admirably adapted for those who superintend the management of their own. Naturally they inhabit the dryest situations, on bare rocks and sandy plains, where not even a blade of grass can exist, alternately exposed to heavy dews at night and the scorching rays of the mid-day sun during the day. A large portion of the nourishmēnt they receive is conveyed by thousands of mouths (invisible to the naked ege, but covering their surface) to the mass of juicy beds of cellular tissue which lie beneath the skin; the roots convey the rest. In a high, moist temperature, many succulents may be grown to a large size in a short time; and during the growing period all of them flourish better in a moist atmosphere. Where it can be done it is a great advantage to have a house entirely appropriated to them. But few species attain a great height, consequently a low roofed house is well suited to them. As small houses may be put up at a trifling expense now that glass is so cheap, most amateurs may erect one for the purpose. Such a house may be heated by gas where it is available, which is a very neat plan, and requires little or no trouble in attention.

Mesembryanthemums, with the exception of a few annual species, may be all propagated very readily from cuttings, taken off at any time during spring and summer, dried for a day or two in a shady place, and then inserted in pots of light sandy loam and lime rubbish. They do not require to be covered with bell glasses, but should be placed on a cool, dry shelf, or in a dry pit, where they can be shaded until they have begun to make roots, which will be in from three to five weeks; they may then be potted off into small pots, with light rich loam, well drained; a slight mixture of very rotten manure is of advantage. Unless the cuttings be dried before inserting them, they are very liable to damp off. The genera *Rochea*, *Portulacaria*, *Kalosanthes*, *Crassula*, *Turgosia*, and others may also be raised from cuttings without any trouble. The *Agaves* and *Furcræa* are multiplied by suckers, which in some species rise plentifully from the roots; others, however, more rarely show a disposition to increase in this manner, unless the centre or crown of the plant be injured, or cut out. The *Echeverias* produce abundance of small leaves upon the flower stems, which, when ripe, fall off; and if laid on the surface of the soil in a pot, will, in a few days, send out roots and produce perfect plants in three weeks, a fact not generally known. This genus is very hardy; and *E. coccinea* and *gibbiflora* are very elegant flowering plants. *Sempervivums* are multiplied by cuttings, offsets, or seeds, which they produce freely. Most of the cactus tribes, as *Cereus*, *Cactus*, *Echinocactus*, *Epiphyllum*, *Mammillaria*, and *Opuntia*, may be increased by offsets, or cuttings; light sandy loam, with a considerable admixture of lime rubbish is the best soil for this tribe.

With regard to temperature, many succulents are more frequently injured by two much heat, rather than cold. With the exception perhaps, of a few *Cacti* and *Stapelias*, the rest flourish best in a comparatively cool atmosphere. Even a cold pit, if *dry*, will answer well—the only fear of losing them in cold pits being from an excess of damp. During winter this tribe needs very little water, and every care should be taken to see that there is no drip from the glass, arising from broken squares, cracks, or imperfect glazing, as at this period many of the delicate kinds will perish from this cause, although in spring and summer they will be benefitted by an occasional syringing over-head. Air should be freely admitted, both in winter and summer—in the winter by opening the side lights in fine days. The soil should be frequently stirred, and attention directed to keep down insects, to which they are rather liable, particularly to scale, white bug, and green fly; the first may be sponged off with soft soap and water, the second washed off with simple water, and the last got rid of by fumigation. In regard to temperature, most succulents will bear forty-five degrees and even lower; while a few stand two or three degrees of frost with impunity.

The strong shrubby *Aloes*, *Crassulas*, *Mesembryanthemums*, and *Sempervivums*, are benefited by being placed out of doors from the beginning of June to the end of September; the best situation is a place fully exposed to the sun, and on a stratum of ashes or gravel; an awning of canvas to screen them from excessive rains would be found highly conducive to their health, but may be dispensed with. The *Cacti* should be turned out as soon as they have bloomed. The majority of succulents do not require frequent re-potting, but should all be thoroughly drained.

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REMARKS ON POPULAR FLOWERS AND OLD GARDEN FAVOURITES.

BY MR. EDWARD SHEPPARD.

No. III.—The Christmas Rose.

HELLEBORUS NIGER, the Christmas Rose, demands our admiration from the early season of its blossoming, and the delicate beauty of its flowers. In form they resemble a large single white rose, and are surrounded by handsome dark-green glossy leaves, which show off its chaste blossoms to great advantage. Like all the plants of its order it possesses valuable medicinal properties, and was believed by the ancients to be very efficacious in the cure of mental diseases; they also used it to purify their houses and hallow their dwellings, and believed by so doing they kept away evil spirits. This ceremony was performed with great devotion, and accompanied with the chanting of solemn hymns. In like manner they blessed their cattle with it, to preserve them from an evil spell; for these purposes it was dug up with much ceremony by the ancient Greeks, with prayers to Apollo for leave to dig up the plant, and to Æsculapius for a blessing on its virtues; during the ceremony the flight of eagles was much attended to; should one of these birds approach, the taking up of the plant was deferred.

The Christmas Rose has long been in cultivation in our English gardens, as we learn from that indefatigable old botanist, Gerarde, who in his "Herball," fol. 1597, p. 826, tells us, after enumerating four species, "These Hellebors growe vpon rough and craggie mountaines: the two last do grow wilde in many woods and shadowie places in England: we have them all in our London gardens." These early embellishers of the parterre are valuable from blossoming at such a season when there are few plants beside to enliven the garden, and are worthy of being cultivated more extensively; they are very hardy, and a succession may be had in bloom by forcing a few plants in pots for the decoration of the greenhouse or dwelling-room. Their propagation is easy, by division of the roots any time between the months of June and October; rich mould suits them well. *Helleborus niger*, as well as other species, is a native of southern and central Europe. *H. viridis* has green flowers; *H. purpurascens* is a green and coppery coloured variety; *H. atrorubens* pale green and purple; *H. lividus* pale yellow green; *H. odorous*, which possesses a scent considered agreeable, is an intense bright green; while *H. Olympicus* and *H. Orientalis* are white, tinged with a delicate blush. I have all the above in my garden, where they make really pretty objects, blooming in succession from about Christmas to the end of April. Coming into blossom whilst "winter lingers in the lap of spring," they have a considerable value in my eyes, and I would sooner dispense with many other plants than part with the modest "Christmas Rose."

CULTURAL REMARKS ON GLADIOLUS INSIGNIS.

BY A JERSEY FLORIST.

THE cultivation of *Gladiolus insignis*, although one of the handsomest of that beautiful class of Cape bulbs, appears to have been neglected more than the plant deserves. Its fine spikes of blossoms of a rich crimson, marked with blue on the three lower petals, are truly beautiful, and render it a striking object, whether grown in the border or in pots. I have grown it for some years in both ways, and the following is the outline of my practice:—

To commence with pot culture. The compost I use for this purpose consists of good friable loam with a little gritty sand, in which I pot the roots, in six-inch pots, in October. I place them in a cold pit or frame, and until the roots have pushed well, I give but a very moderate quantity of water; they remain in the cold pit until the end of February, when I re-pot them into a larger size, using a little old decayed hot-bed manure with the compost before named, the manure being placed at the bottom of the pot, and not in contact with the bulbs. After this re-potting I return them to a situation where they may have the full benefit of the sun, giving them liquid manure in a diluted state. Early in June they will bloom, throwing up fine branching spikes of their delightful blossoms, three feet and upwards in height, and presenting a splendid appearance. When they have gone out of flower I place them out of doors in a shady place, and diminish the supply of water by degrees as the leaves wither, when I turn them out of pot, and usually find two or three strong roots to each, as well as younger ones, which I take off and place in a drawer for potting the following season.

For culture in the flower-garden I fix upon a situation that is open to the sun as much as possible, where I commence in September the formation of a bed for their reception, by digging in a good layer of manure, well decomposed; I let the ground remain rough for about a month, to sweeten the soil. About the middle of October I rake the bed smooth, and proceed to mark out rows for the roots, so that they may be nine inches apart. They are then put in four inches deep, and not nearer than eight inches in the rows. To protect them from frost in winter, I spread a little litter, or sand over the bed, not more than an inch deep. Although the roots do not make much progress through the winter, such protection is necessary to preserve the growth from injury beneath the surface, which would seriously injure their bloom. When the spring begins to advance, their leaves make rapid progress, and reach a foot to a foot and a half high; by midsummer they bloom, and last a month or six weeks in great beauty. Out of doors their flower-spikes do not attain so great a length as in the pit or greenhouse, but I think the colour of the flowers is richer and more vivid, The leaves begin to decay as the bloom passes off, they are then taken up and divided, and placed in a dry place, in store for another year's planting.

When grown in poor soil, *Gladiolus insignis* will not make such a good display—a situation fully exposed to the sun, as I have before stated, is a point of some importance in obtaining a good bloom; and if treated in such a place as I have indicated above, the grower will be amply rewarded by a strong bloom.

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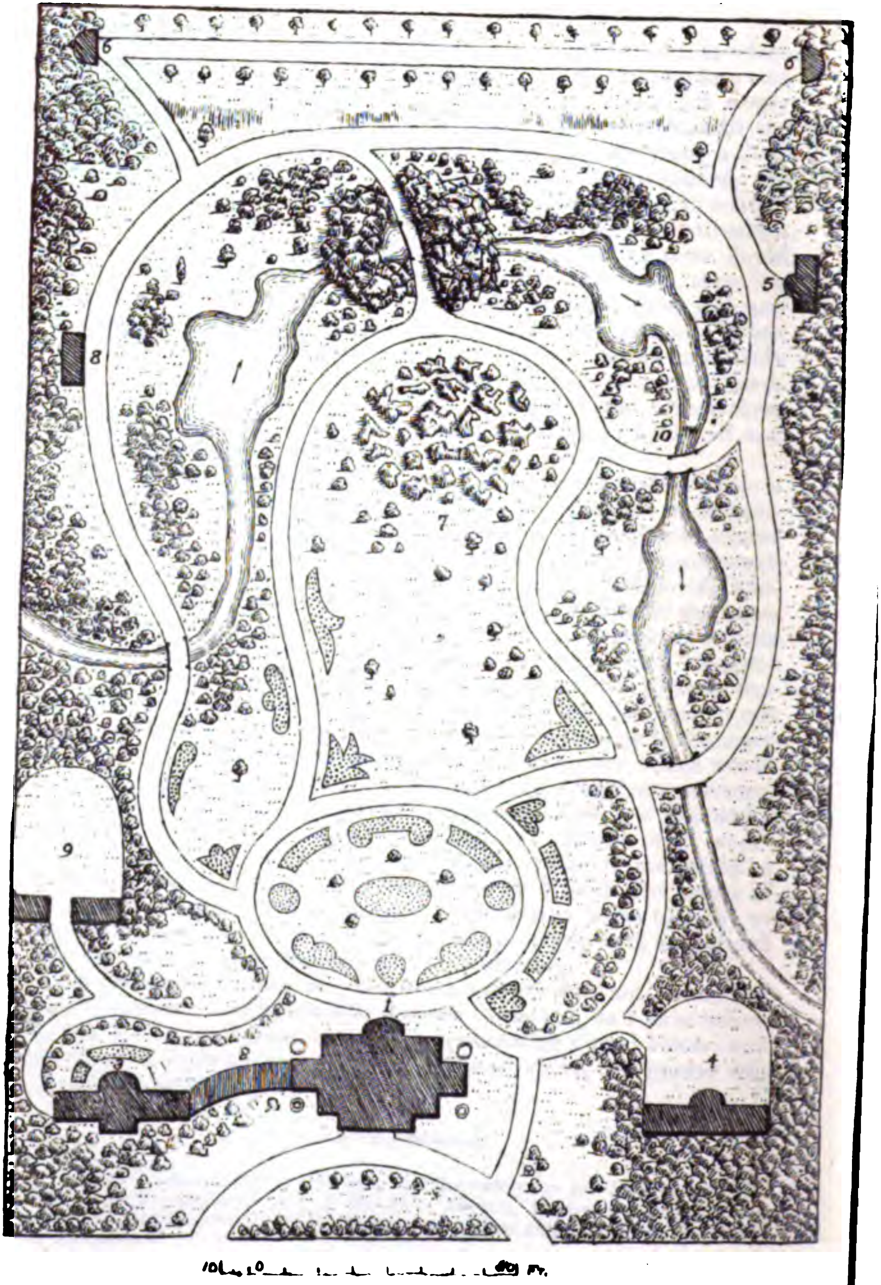
HORTICULTURAL SOCIETY.—We learn that the society has just received from Dr. Royle a small quantity of seeds of the Abies Deodara, Cupressus tortulosa, Pinus excelsa, and of the interesting hardy Bamboo, and packets may now be had by Fellows on application.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DESIGN FOR A VILLA RESIDENCE AND GROUNDS.

BY T. RUTGER, ESQ.

THE design herewith given comprises about an acre and three quarters, and is intended for a villa residence. The ground is supposed to be rather undulated, and the streamlet to flow along the hollow parts thereof, and widened where convenient, and at the least expense.

In the progress of the stream, it will be perceived that it passes through a grotto, and where it crosses the walks, rustic bridges are intended. At the southern extremity, there is a considerable rise in the ground, and on its summit a broad walk, and an avenue is introduced, with an alcove at each end. The design is partly intended to show what may be done with a small stream of water, when the ground will allow, by diverting it from its natural course, and thus be made a principal source for embellishment. Ornamental vases, statues, etc., may be placed in a variety of situations fancy may direct. The reference will explain what is further necessary.

Reference.—No. 1, House; 2, Covered Way, with glass sides and roof, leading to the Conservatory; 3, Conservatory; 4, Aviary; 5, Tea-room; 6, Alcove; 7, Rockery; 8, Summer-house; 9, Bowling-green, or children's Play-ground; 10, Cascade.

By way of conclusion, a word or two about rockeries may not be amiss. Perhaps there is nothing in ornamental gardening that requires more taste in designing than a rockery. We frequently see a mass of stones with other materials heaped up together in a sort of chance way, without reference to anything like a design to make it interesting, so as to meet the eye with any degree of pleasure, or to make it useful in a scientific point of view, both of which should be aimed at. Rockeries, on a large scale might be constructed, so that the masses of rock might be divided, with room to walk in and round about the interior of the mass. The rock plants might then be introduced with greater advantage, with respect to situation, aspect, etc., and thus be made a very interesting feature in the garden, particularly to those who are interested in rock plants. Some years ago I witnessed a rockery of this description in Mr. Pince's nursery at Exeter.

* * *

GYNERIUM ARGENTEUM.—Your correspondent *J. D.* in the October number of the *Cabinet* has given a description of his plant. I beg to inform you that I have a fine specimen of this striking grass that exceeds it. The tuft is about twenty-five feet round, and twenty feet high, with twenty spikes in full flower.—*S.*

INSECTS INFESTING PLANTS IN THE WINTER SEASON.

BY THE FOREMAN OF A LONDON NURSERY.

DURING winter the insect creation is generally inactive, and the gardener is not so liable to be plagued with them as he is in summer. In houses where a high temperature is maintained, however, they continue active, and unless looked after they will frequently commit serious damage, besides disfiguring the house and plants. Now that there is not so much to do out of doors, greater leisure is allowed for destroying these pests, and there is scarcely a day but something may be done towards it, as well as to keeping the plants clean. In the greenhouse insects are not so abundant now as in the stove, and one of the principal means whereby they are found in the cooler house arises from neglect when plants are introduced into it from the stove; before this is done at any time it will be found to conduce greatly to the desired end if the plant be looked over well first, and thus a great deal of vexation and trouble may be saved.

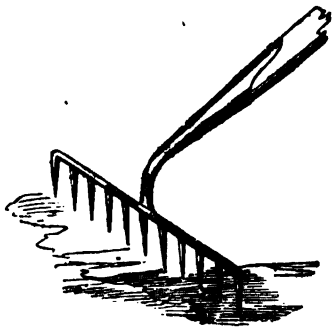
Where any pits or houses are left empty, and before cleaning them, it is a good plan to burn a quantity of sulphur in them, shutting up close, and keeping the fumes in for a few hours; a dry day is best for this operation. The greatest pest now found in the greenhouse is the thrip, and this commonly on Azaleas, which are very subject to it. Fumigation and a wash made of sulphur and lime-water, in which a little size is dissolved, are the best remedies. As the plants will bear more smoke now than earlier, they should have it administered strongly.

Camellias, Oranges and many other descriptions of plants are subject to the scale; nothing is so effectual in clearing them as sponging the leaves well with soft soap and water, giving them a good syringing as a finish. Plants with small leaves cannot be treated in this way. They may be dipped in the soap and water, made strong, and allowed to stand three or four days, and then be well syringed with clean water, heated to about sixty or seventy degrees. If this be not sufficient to rid them, they may have a repetition of the same process; it will, however, sometimes fail, and in such cases, unless the plants can be cut down, they had perhaps as well be given over as incurable. The fecundity of the green fly is well known, and they are troublesome even now—the best remedy is tobacco-smoke, and the proper way is to have the fumigator always in readiness, and as soon as one insect of this kind is perceived, apply the tobacco immediately. Some have recommended the use of various solutions, but I have always found smoking effectual, if not at once, on a second application. Another insect, the mealy bug, is common, but generally to be found in houses of higher temperature than the greenhouse. It is, perhaps, the greatest nuisance of all, requiring, when once it appears, constant labour to keep it in subjection and a long time to get rid of it altogether, as it increases prodigiously if left to have its own way. When first discovered, if only on one plant, destroy the plant rather than run the risk of the consequences of retaining it. When a collection of plants is infested, those of least value may be got rid of altogether by burning them first, the remainder of them should be dipped in strong tobacco-water, with sufficient size in it to render it sticky: this will adhere to the plants and kill the insects; after a day or two it may be washed off. Perseverance in this way will ultimately be followed by the desired success, but the gardener should always bear in mind that "prevention is better than cure," and true economy teaches that it is better to keep a sharp look out than to allow such pests to increase and multiply.

RECENT IMPROVEMENTS IN HORTICULTURAL APPARATUS, IMPLEMENTS, AND MANUFACTURES.

(*Continued from page 295.*)

WE have yet a few articles deserving of notice, from the manufactory of Messrs. Gidney and Son, of East Dereham. Their new Garden Rake is very different to those at present in general use, and we have found it very efficient, especially in strong soils, where weeds and decayed vegetable matter are so liable to clog up the common form in which this tool is made, especially about the neck.


Improved Garden Rake.

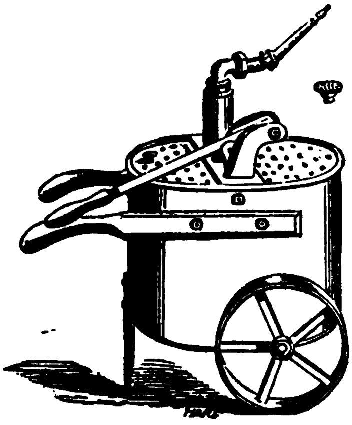
In Messrs. Gidney's rake the teeth are fine, and round, and shouldered into the frame; the neck gradually tapers to the socket, and is rounded off instead of presenting an angular point in which soil and weeds may lodge. Although strong, this rake is light, and made in the best possible manner, as are all the implements made by this respectable firm that have come under our notice.

Their garden engine, to hold thirty gallons, is a light and powerful article, made of galvanized iron, and will throw a continuous stream to a distance of fifty-five feet.

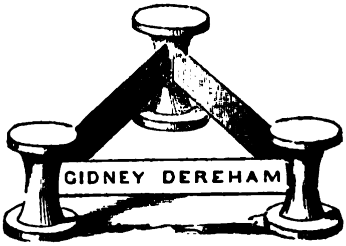
Messrs. Gidney's barrows, of wrought iron, are very light, and stronger as well as more durable than wooden ones.

Another article brought out by this firm we have been much pleased with, namely, their new invented iron garden scraper, of neat appearance, simple in construction, not easily upset or broken, and very portable.

One of these scrapers, placed near beds or borders that are being worked, will prove very serviceable in keeping the walks clean from the earth that will always adhere to the workman's shoes. These scrapers should be in general use in every garden.



Garden Engine.



New Garden Scraper.

A FEW OF THE BEST DAHLIAS ARRANGED IN CLASSES.

THE accompanying list comprises the leading flowers, and such only as may be fully depended on as constant and good.

White.—Queen of the Whites, Kant, Fanny Dodds, White Standard, Royal White, and Queen of the East,

Yellow.—Chance, George Glenny, King of Yellows, Chameleon, Louisa Glenny, and Bessy.

Pink.—Satirist, Rosea elegans, Mrs. Edwards, Princess, Ruby Queen, Deutche Wierde.

Lilac.—Fearless, Admiral, Ne Plus Ultra, King of Lilac, and Annie.

Orange or Buff.—Orange Perfection, Lady Franklin, Sir J. Franklin, Duke of Wellington, Robert Bruce, and Cherub.

Scarlet or Red.—Sir Robert Peel, Royal Scarlet, Scarlet King, Edward, Sir Charles Napier, and Lord Cardigan.

Crimson.—Duc de Malakoff, Triumph de Pecq, Incomparable (Ablet), and Colonel Windham.

Purple.—Frederick Jerome, Pre-eminent, Touchstone, and Mr. Seldon.

Purple Crimson.—Sir F. Bathurst, Sir Richard Whittington, Hon. Sidney Herbert, Morgan's King, Lord Bath, and Captain Ingram.

Dark. — Grand Sultan, Richard Cobden, Midnight, Essex Triumph, Nigger, Eclipse, and Negro.

Dark Shaded.—Pandora, and General Faucher.

Light Shaded.—Rachael Rawlings, Duchess of Wellington, Empress, and Annie Salter.

Sulphur and Yellow, Shaded or Tipped. — Beauty of the Grove, Doctor Gully, Mrs. Turner, Lady Folkstone, Mrs. Legge, and Constancy.

White, Edged or Tipped.—Barmaid, Princess Radziville, Lady Popham, Amazon, Miss Caroline, and Duchess of Beaufort.

Fancy, Edged or Tipped. — Miss Frampton, Lady Paxton, Forget-Me-Not, Pigeon, Kaiserene von Ostériche, Duchess of Kent, Baron Alderson, Attraction, Florence Nightingale, Butterfly, Madame Armet de Lisle, Lady Grenville, and Imperatrice Eugenie.

Fancy, Striped.—Uncle Tom, Cleopatra, Tam O'Shanter, Enchantress, Vasco de Gama, Marvel, Lady Scot Douglas, Polyphemus, Leader, Wonderful, Gloire de Kaen, Carnation, Souter Johnny, Sibyl, Margaret, and Amphion.

ON THE CULTURE AND MANAGEMENT OF THE ACHIMENES.

BY C. B., ST. JOHN'S WOOD.

THE many species and varieties of this pretty genus are all especially adapted for decoration, and although naturally summer flowers, yet by a succession we may have them in flower for a lengthened period; where a proper degree of light and heat are at command, some sorts, as *picta* and others of like habit, may even be made to bloom during this dull season of the year.

Achimenes are readily multiplied by potting off the small scaly tubers of the last year's growth that are generally produced in abundance. The period at which the tubers should be put in will be regulated by that at which the plants are to bloom. Commencing in February with a succession, plants may be had in flower from the beginning of June to the close of autumn.

The soil in which they are to be planted should be light, but at the same time, rich; the tubers may be planted rather closely together, and should be covered about an inch deep with soil. To start them, especially early, a little bottom heat may be given, and until the young plants appear, water but sparingly, as this tribe is very impatient of water at the root. As soon as they reach a couple of inches in height, pot them off into forty-eight-sized pots, three or four together, if they are required to bloom in this sized pot; if larger pots are made use of, as many as a dozen plants may be grown in each. When potted they will require a little heat to re-establish them, placing them in a close pit for a few days; after this, air should be allowed freely on all suitable occasions. To prevent their becoming drawn up, place them near the glass, and maintain a gentle moist heat, with shade in bright sunshine. Here they will make good progress, and in due time will be ready for a second and final shift. The pots must be well drained, and in transferring the plants the ball should be carefully preserved entire. For large specimens pans are to be preferred instead of pots, as it is not depth so much as surface that the roots require, being always found near the top of the mould. When repotted take them back to the warm pit, and here in a moist atmosphere they will require a little attention to make compact plants, and secure a good display of bloom. A few, consisting of the taller growing kinds may be rendered more compact, and will also flower better if stopped in once or twice. When in bloom the plants should be gradually hardened off before they are taken into a cooler place. As soon as out of flower, the tubers will require maturing by placing the plants in a warm house, and gradually reducing the supply of moisture, and when the foliage is decayed and soil quite dry, the pots will only need placing on a dry back shelf, secure from frost, until they are wanted for next season's bloom.

To have Achimenes in bloom during winter, the best plan is found to be putting in cuttings towards the latter end of summer.

SEASONABLE HINTS ON THE MANAGEMENT OF PLANTS IN ROOMS.

BY MR. HENRY DYER.

NOTWITHSTANDING all that has been said and written concerning the management of plants in rooms, there are many to whom it may not be amiss to offer a few words of advice on this subject, now that the winter season has fairly arrived.

To give directions for the proper management of plants in the dwelling room is a matter of some little difficulty, seeing that so many and such variety will have to be comprised. Each genus requires some variation, more or less, in its treatment from the rest.

Where plants are confined in close dark rooms few of them will thrive; but if light and airy, with windows facing the noon-day sun, most of them will do almost as well as in a greenhouse, and when in such a situation they are found to suffer, the effects may mostly be traced to another cause, either to improper soil or watering. The most essential point to be considered is the supply of light and air, as a deficiency of either one or the other will not fail to cause the plants to assume a sickly appearance. Deprived of light, the best of fruits become insipid and tasteless; and so with flowers, the handsomest become pale, and the foliage white. Light is the element by which plants fix their carbon, or fibre, hence we see the cause of the weakness of plants grown in such situations.

Injudicious watering ruins more plants in rooms than, perhaps, anything else at this period; it is a frequent practice to give water in such excess that the soil is quite sodden, and the roots are destroyed by it. At this time, when few plants are making growth, a small supply is necessary, and that merely to sustain vitality, for the plants themselves perspire a very limited amount; nevertheless, some moisture is requisite by plants to be replenished with stored up food against the renewal of active vegetation in spring. The best plan is to allow the soil in the pot to have the appearance of dryness before more water is given, and then allow sufficient to water the entire ball of earth. Pots should not be allowed to stand in water, this tends to destroy the roots of most plants. Feeders or saucers should therefore be emptied of the water that drains off. An occasional use of the sponge to clean dust and other impurities from the leaves, both on the upper and under surface, is highly conducive to health, and also to the beauty of their appearance; for what looks better at this dreary season than the refreshing green of the leaves of healthy plants, to say nothing of those in flower. They should also be regularly looked over, and the dead or decaying leaves removed. The surface soil in the pot may be stirred also, which is of great benefit, as well as makes them look nicer. I need say nothing here with respect to the soil most suitable, and, indeed, this is a subject embracing so much, and differing according to the variety of plant, that I should take up too much space; I will, therefore, content myself with referring the reader to the many excellent articles on this head, and treating of the particular culture of the plant, that have appeared in your pages.

As to protection, when the weather is likely to prove severe, the safest plan is to remove them from the window, where they would, most probably, receive injury from frost, to the middle of the room—and surround them with a few rugs or blankets. Fire heat is not wanted more than to keep out frost, and those who (as some are accustomed) place their plants in a warm or heated corner near the fire, and away from the light, where they remain for weeks at a time, ought not to expect healthy plants.

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REVIEW.

Cultural Directions for the Rose, with a select list, and Calendar of Operations. By John Cranston, 12mo, pp. 34. London: Houlston and Wright. Price 6*d*.

We have read Mr. Cranston's pamphlet with much satisfaction—it is evidently the production of a practical man, and to those who are interested in Rose culture—(and who are not?) will afford sound information. With respect to manure, planting, pruning and protecting Roses, Mr. Cranston remarks—

"Manure.—Pig-manure is undoubtedly the best for Roses. Let it lie in a heap for six months, by which time it will have become pretty well rotten; a small quantity of this applied to each plant, and forked in during the winter or early part of the spring will have a most beneficial effect. Stable manure is the next best and should be applied when rotten. Guano and super-phosphate of lime are also recommended by some, but these I have not found to answer in my soil, which is of a deep, stiff, loamy nature, naturally good for Roses. I find the application of these manures produces gross succulent wood, and not the firm hard wood which is necessary for the production of fine blooms. Wherever they are used they should be applied in a liquid state, and perhaps when judiciously employed upon light sandy soils, would prove very beneficial.

"Liquid manures are best used in the spring when the plants are in a growing state, and again to the Perpetuals after the first bloom is over. The drainings from dung heaps I have found the most efficacious, and good liquid manure may be made with either horse, cow, sheep, or pig dung.

"Planting.—All kinds worked upon the Brier or other stocks should be planted in the autumn—say early in November—and the tender varieties upon their own roots, which are usually kept in pots, may be planted at any time from March to May. No plant suffers more from late spring planting than the Rose, and I should recommend that all (with the exception of those to be turned out of pots in May) be planted by the end of February, and in no instance later than the middle of March, otherwise many failures and much weak growth will be the result. As soon as the plants are received from the nursery, let the roots be examined, and all injured portions and sucker roots removed; also shorten the long fibrous roots; by no means allow the roots to become dry, but have them put into the ground as soon as possible, and there let them remain until required for planting.

"Endeavour to choose a fine day as early in the month as possible; let the soil be sufficiently, but not too dry, this will be indicated by its being moist without sticking to the shoe or spade. Prepare the soil and holes for the plants as recommended above; then take out a few spadefuls from the centre of each to receive the plant, making the hole sufficiently large that the roots may be spread evenly and to their full extent, but on no account allow them to be planted too deep; level the whole of the mould in, shaking the plant at the same time that it may pass between every fibre, then tread the soil firmly round the roots, holding the plant in one hand to prevent it from sinking deeper into the soil. Put a stake to all standards above two feet high, to prevent their being disturbed by the wind.

"Pruning.—This operation will require to be performed during February, March, and April. Commence with the more hardy varieties, such as the French, Moss, Alba, Provence, etc. These for the most part have dormant looking buds, and being less active than others, take a longer time for their development. Next begin with the Hybrid China, Hybrid Bourbon, and Hybrid Perpetual, but as these are more excitable than the above, only a few of each should be pruned in February, leaving the greater portion to be done in March.

"The Tea-scented, China, and tender Noisettes, should not be pruned before April. Before commencing to prune it is necessary to observe the habit of the plant, whether it be a vigorous, moderate, or dwarf growing variety; also to determine with those kinds suitable for exhibiting, whether they are required for that purpose or merely for effect; if for the former, large blooms will be required and less of them, and these can be obtained by close pruning; in the latter instance longer pruning must be adopted, when a greater quantity of blooms will be obtained, but they will be inferior in quality and less in size.

"Carefully thin out the head of the plants by taking away the small crowded branches, likewise all gross unripe shoots, leaving such only as are composed of firm and well ripened wood, and these at regular and equal distances. Prune down according to the strength of the shoot and habit of the variety; in some cases to two or three inches, in others where the habit is vigorous one foot, or even eighteen inches will not be too long for a shoot to be left, but as this depends upon the habit of the variety and shoot to be pruned, no absolute general rule can be given. In shortening the shoots cut close to an eye, observing, when practicable, to leave well swollen plump buds, which will always produce the finest blossoms; likewise secure those having an outward tendency, and pointing in a direction proper for the handsome formation of the plant.

"The French, Alba, Provence, and nearly all the Moss Roses, require rather close pruning, and if large blooms are required for exhibition, this particular must be strictly attended to.

"The Hybrid Chinas and Hybrid Bourbons, are, with few exceptions, very vigorous growers, and require more care in pruning than most other sorts. An acquaintance with the varieties is necessary to enable the operator to prune successfully—for instance, we have *Fulgens* and *Brennus*, vigorous growing varieties which frequently produce shoots five or six feet long in a season, either of which if pruned as recommended for the French or some other of like habit, would not produce a flower, whereas, with judicious pruning, every shoot would be made to give out large trusses of blooms. The varieties in these two classes must therefore be carefully studied, as there are some amongst them which require close pruning; and these may be known by their moderate style of growth when compared with the large majority of the same families.

"Young plants just received from the nursery will require to be pruned down to two or three eyes, a little more or less, according to the habit of the variety; unless this is attended to, large and handsome heads are rarely obtained. The Austrian Briers require a system of pruning peculiar to themselves; if pruned in the spring as recommended above they will produce but few, if any blooms; therefore all plants that are required to bloom must be left *unpruned*, with the exception merely of a little thinning out, and having just the ends of the shoots taken off; this treatment may be continued from year to year with *Harrisonii* and a few other varieties; but the *Persian Yellow*, to be kept in vigorous health, must be pruned down close every year, otherwise it will soon exhaust itself; when this plan is acted upon, of course no blooms will be produced that season; it is well therefore to grow duplicates of this kind, pruning the one half one year, and the other the next. Like other Roses that are required to form fine and handsome heads, they must be shortened down to four or five buds the first season of planting.

"Weeping Roses (which are vigorous growing varieties, worked five to seven feet high) merely require the gross unripe shoots and those which are over-crowded to be taken out, and the others left unpruned. These for the first year or two should be trained round a small iron hoop placed underneath the head of the plant; in a short time they will form most beautiful pendulous trees, requiring little or no pruning.

"PROTECTING.—The whole of the Tea-scented, China, and the greater portion of the Noisettes, will require to be protected more or less, otherwise they will not withstand the long and continuous frosts and north-easterly winds, which have of late years been so prevalent throughout the spring months. The following is the plan I have adopted during the last few years for protecting the tender budded varieties grown as standards or pillars; and nothing can be more easily applied, or more completely resist the effects of frost. In the first place have a quantity of hay bands twisted and rolled up into convenient lengths; let a stake be driven into the ground close to the plant, and sufficiently

> long to pass through the head of the plant to the extent of the shoots; draw the branches up together, and tie the whole moderately close to the stake, so that the hay bands may be easily turned round the whole of the head, commencing at the lower part or collar of the bud. About this let the bands be put on quite close, but towards the middle, and on the upper part of the plant leave a little space between the coils of the ropes to admit air during damp weather. In the northern and colder parts of England, it is a good, and perhaps the best practice, to take up, about November, all the Tea-scented and China varieties and place them against a south wall, and in very severe weather to put a little matting before them. In the spring, say early in March, re-plant them where they grew before, putting in a little fresh loam and rotten dung. The best protection for tender varieties upon their own roots, is afforded by half decayed leaves placed two or three inches thick upon the surface of the bed: moss will also do, but will require to be pegged down or stones placed upon it to prevent the wind blowing it away.
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> "A lighter protection for the heads than that recommended for the standards will suffice for these; if the roots and crown of the plants are well preserved, a sufficient quantity of shoots will be produced from them to replace any that are killed down. A few fern branches placed about the head is usually sufficient."

The "Cultural Directions" further embrace the following topics:—Insects infesting the Rose, mildew, Stocks, exhibiting and cutting blooms for show, and the properties of a good show Rose; also lists of Roses classified, comprising Roses to be grown in large manufacturing towns, or in localities where much smoke prevails, with the aid of large hand or bell-glasses. Choice varieties in addition to the whole of the foregoing, suitable for cold climates and soils, and also in moderately smoky atmospheres. Varieties, including the preceding, suitable for ordinary soils, where no smoke exists, and also for the most favourable parts of the north of England. Varieties for the most favourable soils and climates. Finest show Roses—and Garden varieties selected for grouping, together with lists of varieties for forcing, pillars, etc.

NOTES ON NEW AND SELECT PLANTS.

PANDANUS CANDELABRUM. Nat. Ord. *Pandaneæ.*—A Screw-Pine from the western coast of Africa, where it occurs very plentifully, and from there introduced to the West Indies, and England, but rare in collections. Specimens are, however, growing at Kew and the Crystal Palace, where they flourish well. In its native locality it appears to attain the dimensions of a large tree, crowded with a tuft of leaves, spirally arranged in a handsome manner, that causes them to give quite a picturesque effect to the landscape. The leaves are about three feet long, and about two inches across, the margine rather widely beset with brown spinous teeth; the flowers are borne in dense thyrses springing from the axils of the leaves, and said to yield a powerful odour. The fruit is a drupe, yellow below and dark green above, with a tinge of red where the free portion unites with that which is in contact with the adjacent drupes, the apex supporting five or six sessile stigmas.—(*Bot. Mag.*, 5014.)

116. **Sabbatia campestris.** Nat. Ord. *Gentianeæ.*—An annual very little known as yet, from the Arkansas territory, where it was discovered by Mr. James Drummond, inhabiting the prairies. It has also been detected in Texas, and New Orleans. We owe its introduction to Mr. W. Thompson, a young and very deserving seedsman who has recently commenced business at Ipswich; he received seeds from a correspondent in Germany in 1855. It grows from four to six inches and upwards in height; the corolla large and handsome, of five segments, of a deep rose colour, with a pale yellow centre, measuring about two inches across; the leaves are opposite, obcordate, and sessile, about three quarters of an inch long, of a light green colour. Seeds require the temperature of a hot-bed. (*Bot. Mag.*, 5015.)

117. **Dillenia speciosa.** Nat. Ord. *Dilleniaceæ.* — Drs. Hooker and Thomson describe this beautiful tree as inhabiting the dense forests of the whole of tropical India, and as frequently grown in a state of cultivation on account of its beautiful large white blossoms; the petals, five in number, are upwards of three inches long and concave in the upper portion, composing a flower of six or eight inches across; the stamens are very numerous, forming a large yellow tuft in the centre, almost concealing the pistillum. The leaves are very much confined to the extremities of the branches (which are numerous and spreading), six to eight inches long, deeply serrated at the margine, and closely ribbed. (*Bot. Mag.*, 5016.)

118. **Salvia candelabrum.** Nat. Ord. *Labiatæ.*—A hardy suffruticose Salvia from Spain, where it grows at an elevation of 2500 to 3000 feet above the sea level. The flowers are of medium size, white, or pale sulphur, with the lower lip of deep rich violet, variegated and streaked with white in the throat, borne in a cyme somewhat regularly disposed, which has given rise to the specific name. The whole plant is rather hoary, very leafy, and exhales a strong aromatic scent. (*Bot. Mag.*, 5017.)

519. **Codonopsis rotundifolia,** var. **Grandiflora.** Nat. Ord. *Campanulaceæ.*—The present variety was raised at Kew from Himalayan seeds that flowered in July of this year, and has proved a mere variety of *C. rotundifolia,* but rather more handsome than its relation in its larger and more variegated corolla, which is campanulate, pale green and delicately marked on the inside, measuring about an inch across the mouth. The stem is tomentose, and the leaves of a lively green above, and pea green beneath. (*Bot. Mag.*, 5018.)

FLORICULTURAL OPERATIONS FOR DECEMBER.

IN THE FLOWER GARDEN.

General Operations.—*Alterations,* and such operations as require carting or wheeling, should be performed, if possible, in frosty weather, that walks and grass may be preserved from injury as much as possible. *Composts,* turn over heaps in order to expose them to frost; they should be covered over from wet if practicable, for this purpose open sheds are best. Every opportunity should be availed to obtain the various composts likely to be wanted; they consist chiefly of the following:—Loam, the top spit from pastures; yellow loam, from pits; leaf-mould, from woods; sand of various kinds; peat from commons, and bog peat manures, as horse and cow dung: marl, lime, chalk, ashes, charcoal, guano, bone dust, etc. With such materials any description of compost necessary for the successful cultivation of plants may be formed. *Dig and Fork over*, as directed in last month. *Edgings*, trim. *Florist's Flowers* in beds, protect if severe weather occur. *Grass* may be rolled when the weather is open. *Gravel Walks*, roll and sweep. *Hedges*, clip, and plant new ones. *Leaves*, gather for compost, or trench them in the ground of borders or shrubbery. *Perennials* divide and plant. *Plants in Pots*, protect such as likely to be injured by severe weather. *Shrubs* of all kinds plant; mulch such as are rather tender, and place stakes to prevent injury by winds. *Tree and Shrub Seeds*, many may be collected now, and stored up. *Turf*, if the weather be open, may be laid down.

CULTURAL DEPARTMENT.—*Alpines and Rock Plants*, shelter tender kinds with a covering of fern, etc., keep clean. *Chrysanthemums*, when the plants have ceased blooming cut off the stalks, and remove them to a cool frame. If it is likely any of the flowers possess seed, such plants should not be headed down, but place them in the greenhouse, which see. *Dahlias*, look over the stock of roots, keep them dry, and let them have air whenever the weather is not frosty, in order to prevent mouldiness, cut off any decayed parts. *Hollyhocks*, see last month's directions. *Hyacinths*, top-dress the beds with a coating of strong manure, three inches thick. The bulbs need not be renewed more than once in three or four years. *Pinks*, look over the beds, and destroy grubs, which, together with worms, will do much injury unless prevented; place small sticks to prevent their being twisted by the wind. *Polyanthuses*, protect from very severe frost or wet, by placing tiles or other coverings over them. *Ranunculuses*, protect in like case. Planting may be performed if mild. *Roses*, protect the stems of tender kinds, and climbers with a covering of fern, or whin, so as to admit some air; suckers may be taken off, and replanted. *Tulips*, protect the beds from frost and snow. The best framework to support the mats is formed of iron rods, which will be found the neatest and most durable, as well as the most economical in the end.

IN THE GREENHOUSE, COLD PIT, AND FRAME.

GENERAL OPERATIONS.—*Air* must be admitted whenever the temperature outside permits. *Cleanliness* will require constant attention to the plants, pots, and house; this is very necessary at the present time to keep the stock in health. *Fumigate*, to keep down insects; its effects will be well seconded by scrubbing, and washing large foliage. *Surface Soil*, keep stirring. *Temperature* of the greenhouse may be kept at 45° by day and 40° by night; so long as a freezing temperature is excluded, either by the help of coverings or fires, the plants will receive no harm. When the temperature is low, the darkness occasioned by shading will not injure the plants. *Water* sparingly, and keep the stage, paths, and inside of pits dry.

CULTURAL DEPARTMENT IN THE COLD PIT AND FRAME.—*Alpines*, allow them free circulation of air in fine days, by removing the sashes or shutters. The plants will require little or no water during this month; dampness must be specially guarded against. *Auriculas*, let them have plenty of air, it matters little how much wind they are exposed to—or frost, provided they are dry, which at this season is very necessary. *Bulbs*, let them have a gentle heat for early blooming. *Carnations and Picotees*, take off the lights in fine weather, preserving them only from frost, snow, and heavy rain; water carefully, if very dry, but avoid wetting the leaves; keep free from slugs, and observe last month's directions as to spot on the leaves. *Chrysanthemums*, bring in those that being out of flower have been cut down and taken up. *Cinerarias*, see last month's directions. *Ixias, Sparaxises, etc.*, allow plenty of air on fine days. *Pansies*, keep off damp by means of free ventilation. *Verbenas*, also require abundance of air so long as frost is not admitted; pick off decayed leaves, and water very moderately; if mildew appear, dust the plants with sulphur directly.

CULTURAL DEPARTMENT IN THE GREENHOUSE.—*Calceolarias*, will require attention by fumigation to prevent the ravages of green fly, and heat and moisture according as they are intended to bloom; the latter observation applies also to *Camellias*, which should have sufficient water to prevent their losing the buds. *Chrysanthemums*, such as have bloomed out of doors, may be removed here to perfect their seeds if wanted, which, when ripe, cut off and preserve for spring sowing. *Cinerarias*, remove all suckers, and pinch off the heads of specimen plants for exhibition if showing bloom; this in order to compel the laterals to push more freely; and bring all into the greenhouse intended for early bloom, where they should have plenty of room allowed them. *Climbing Plants*, these will require to be pruned, were it only to afford light in the house, now the days are short and mostly gloomy; the *Passifloras* may be cut back to one eye from the main stem. The winter blooming Climbers should be trained and dressed. *Epacrises* and *Ericas*, last month's directions still apply. *Oranges* coming into blossom should have a little increase of temperature. *Pelargoniums*, stop in those plants intended for June blooming, when they may be kept rather dry until they have begun to shoot. Train out the shoots that will admit of it, tieing them to sticks in order to allow air to get to the centre of the plant freely. *Primroses, Chinese*, bring in; let them have manure water when they show flower. *Shrubs for forcing*, introduce. *Succulents*, keep these generally dry during their period of rest. A few of the Cactuses now in bloom will require warmth and moisture, however.

IN THE STOVE.

General Operations.—The main points to be attended to this month in the management of the stove, are, to admit *air*, preserve *cleanliness*, keep down *insects*, and *water* with circumspection.

Cultural Department.—*Achimenes*, pot for early flowering. *Begonias* may be repotted for the same purpose. *Clerodendrons* and *Franciceas* repot towards the end of the month, give water in moderation. *Gardenias* may also be potted and started into growth; bottom heat is best. *Gesnerias, Gloxinias, etc.*, repot in fresh soil; let them have moderate heat, and a little water. *Hoya bella*, for baskets, may be planted and trained downwards as it makes progress. *Ixoras*, a rather cool temperature suits best, with water rather sparingly supplied. *Luculias*, those in flower will have the bloom preserved for a lengthened period if removed from the stove to the lower temperature of a greenhouse. *Lycopodiums*, may be divided to increase stock. *Orchids*, water only those making growth. *Shrubs* for forcing may be brought in early in the month.

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QUESTIONS, ANSWERS, AND REMARKS.

Weigelia rosea and Deutzia gracilis.—An Amateur wishes for information as to the proper plan for pruning young plants of these handsome shrubs.—*Richmond.* [These shrubs will be better left to themselves until they are about five years old. After that cut out the old wood of each, in moderation, so as to keep the inside sufficiently open. Any rambling young branch may however be dispensed with.—Ed.]

American Aloe.—*A Lady Subscriber* has an American Aloe growing in a large tub, that has been standing out of doors, how can she best preserve it through the winter, having no conservatory?—*Hexham.* [Our esteemed subscriber's letter was too late for a reply in November. The Aloe will keep very well, if preserved in a cool, dry place; the soil should be maintained in a rather dry state, and frost excluded. When the weather is mild, it may be set out of doors occasionally.—Ed.]

Aloysia citriodora.—I have a fine plant of this old-fashioned but delightful scented plant against the end of my house which has stood well with me for several years, and looks very luxuriant in the summer. I cut it down regularly on the approach of winter's frost, having just performed the operation at the present season (Nov. 12.) I spread a layer of six inches of ashes over the root and stump to preserve it, and over this a armful of fern, with a mat to keep it together and ward off the wet. I remove the covering in April, when it pushes vigorous shoots, which are screened at nights with a mat for a week or two. By the end of autumn the shoots are from four to five feet long, and as thick as a cane. Its leaves shed a delightful perfume for some distance around, and it looks very pretty when covered with its delicate green foliage even to the last.—*M. P.*, *Sussex*.

Orchid House.—Having put a small stove, heated by hot water, and measuring only nine feet long by seven feet in width, I should wish to know whether I might expect success in the cultivation of a few Orchids, as *Cattleyas*, *Stanhopeas*, *Oncidiums*. and *Lycastes*, of the small growing sorts.—*A Young Gardener*. [There is no reason why you should not grow Orchids of the genera you enumerate, provided they have warmth and moisture. The *Oncidiums* and *Cattleyas* may be attached to charred blocks of wood in pots, while *Lycastes*, *etc.*, will succeed well in suspended baskets. The temperature at this season should be from 55° to 60° at night.—Ed.]

Pansy Culture.—To grow these beautiful little flowers properly, let the ground be well drained, and well dressed with decomposed cow-dung; and if too adhesive, fork in a little sand. Plant nine inches apart, and close the earth well about the roots. Always take side shoots springing from the bottom for propagating, if you can get them. They always root freely, if not rooted when taken off. Avoid taking hollow pipy shoots for cuttings. To ensure striking, the bottom of the shoots, when cut off to the base of the leaf, should be solid. Shade all cuttings, and cover close with a hand or bell glass, whether they are in frames, boxes, pots, or the open ground. Continue planting beds of struck cuttings, to succeed one another in flower. It is only from young plants we can get fine blooms. Shade all blooms for exhibition. An hour's hot sun would destroy the finest flowers in the bed. Save seed from half-a-dozen of the finest varieties you possess, planted by themselves away from all others. Sow as soon as you save it, or a portion, from May to August, as it may happen. Plant them out as soon as they have four rough leaves; but press the earth to the roots every time the frost and thaw disturbs them. In winter, if you have convenience, hoop and mat, or otherwise cover the bed—if with nothing else, with litter. In spring, the beds of seedlings or established plants may have half an inch thickness of dung from an old hot-bed, or well decomposed cow-dung. As fast as any seedlings bloom, inferior to those you have, pull them up and throw them away. Never wait for any particular season for taking off side-shoots; take them whenever you can get them without distressing the plants. Water seldom, but effectually; soak the bed to a considerable depth. Towards October pot all cuttings that you do not want to plant out, and keep them under glass; begin with thumb-pots, and shift to larger as these fill with roots. If you bloom any in pots, use seven or eight-inch pots, with a compost of two-thirds loam from rotted turves, and one-third cow-dung, or dung from an old melon-bed. Whenever the surface of the bed has run together solid, stir the top one or two inches, always closing the earth to the roots. Never allow a weed to grow in the bed. A little neglect in this matter will cause a world of trouble. Never remove a good seedling till you have propagated it a little. Plant your principal spring blooming bed in October; the succession ones any time when weather suits.—*G. Glenny*.

Kalosanthes coccinea.—Let me urge a word in favour of this splendid plant. It is true it is an old one, but none the worse for that. Few plants are so brilliant in tint, being a vivid scarlet crimson, and fine flowering plant. All it requires is to be well grown; with a little care I have produced magnificent specimens. Insert cuttings in February, trimming off the bottom leaves, and using small pots of peat and loam with plenty of sand. Bottom heat is not essential, but of great advantage. After they are put in, shade them till they are rooted, and water them when the soil requires it, as they should be kept just damp, and no more. They will soon strike, when they should be potted off with like soil as before for cuttings. After they have begun to grow a bit, say three inches, cut off the tops to make bushy plants, repot them into a larger size, and keep them in the frame till nearly midsummer, when it will be time to harden them off for standing out of doors. They will bloom finely the following year, and should be tied out nicely to show them to advantage. After flowering give little water till they break again; although the plants should never be allowed to become quite dry at the roots, or they will lose their lower leaves. Some persons recommend lime rubbish as an ingredient in the soil, but I think with no advantage, and sand is more suitable. Free drainage must not be forgotten, and with these little attentions the Kalosanthes will bloom magnificently. It is a native of the Cape of Good Hope, and one of the handsomest of the Crassula family; the only wonder with me is—that everybody does not grow it.—*T. B.*

Iridaceæ.—Many plants of this natural order grow in moist or marshyplaces, and it is a too common error to suppose that light, sandy soils are most suitable, for some delight in an abundance of water. The *Iris Xiphium*, *J. Susiana*, *Narcissus*, *and Gladiolus Natalensis*, would, I believe, be found to bloom more freely and far better in a soil more loamy, well drained, and freely supplied with water than is customary. *Iris Susiana* (the Chalcedonian Iris) does not generally bloom well as it is mostly grown, and would appear to have been treated better by the old gardeners rather than by the modern, for it has been grown in England about three hundred years, and Gerarde says it was with him a plant of exceeding beauty, and would justify the opinion of its being the "lily of the field," alluded to by our Saviour, that exceeded "Solomon in all his glory."—*Juvenis.*

Botanical Mission to Dutch East India.—It gives us much pleasure to announce that the Dutch government have recently dispatched the well-known botanist Dr. De Vriese, assisted by Dr. De Vry as chemist, on a botanical mission to their possessions in the East Indies, to explore the vegetable riches of Java and the Malay Archipelago. These gentlemen embarked at Marseilles in the Peninsula and Oriental Company's mail steamer that left Southampton on the 20th October. Dr. De Vriese is charged with researches after plants useful in any way in the arts, and their products, as gums, resins, dye-stuffs, fabrics, caoutchoucs, varieties of gutta-perchas, etc., as well as to search for new plants in these regions so abundantly furnished with many of the most beautiful and interesting natural productions. *En route* these gentlemen will spend a fortnight in Ceylon, and we are sure will carry with them the best wishes of all who are interested in the knowledge of plants.

German Asters for Exhibition.—Those who have seen the fine display of German Asters at the Crystal Palace, and other of our floral exhibitions, may be glad to know the method pursued in obtaining such fine blooms, and preparing them for the show. Having devoted some attention to this beautiful flower I will describe my treatment, in the hope that it may lead to farther competition. I do not consider it a good plan to sow the seed in the beds, as the young plants are so liable to injury from snails and other pests, while in pots or pans they are so liable to be drawn up and weakly. I sow my seed in a cold pit, under glass, about the first week in May, in small drills eight inches apart, and very thinly. They soon make their appearance above the soil, and then must have air admitted; as soon as they are high enough to be handled I take off the lights altogether, and in a short time prick them out on a gentle uncovered hot-bed, six inches apart. I remove them to the bed before the leading stem has had time to advance; care should be taken to remove them with as much mould as possible around the roots; some rich manure is to be digged into the bed, and the plants put in from ten inches to a foot apart. They will require watering until they are well rooted, also if the weather prove dry. I keep the soil stirred between them, and tie up the plants as they make progress. A top-dressing of manure greatly assists in forming fine blooms; and all superfluous shoots as well as the centre one or head of the leader are pinched out, to throw the strength of the plant into the three or four blooms alone that I leave on each plant. I tie them up to neat sticks, and as the bloom advances make ready some shades of square boards, a foot across, with a stick inserted as a support at one corner, to keep off hot sun as well as rain.—*An Exhibitor.*

Pompone Chrysanthemums for Exhibition.—Put in cuttings of suckers, by the end of November, in sixty-sized pots, keep them in a cold frame all the winter; pot off, in the beginning of March, in forty-eights, and carefully take out the leader. Shift again in the latter end of May, again stopping carefully all the breaks, and peg down to the rim of the pot all the branches; shift again in June, into sixteen-sized pots, being the last stage for blooming; keep stopping to the middle of August, and pegging down; never mind the centre, it is sure to fill up, look after the outside; give plenty of liquid manure-water twice a day, or oftener if required: plunge them in a shady place in summer, about three parts up the pot, where they will not get the afternoon sun. You will have, by this treatment, plants of good foliage, one foot high, and three feet six inches over, without sticks.—*G. Glenny.*

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THE

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AND

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PREFACE.

THE Editor, on the occasion of his again returning thanks to his numerous friends and subscribers, does so with unmingled feelings of gratitude for the noble support which the FLORICULTURAL CABINET has received.

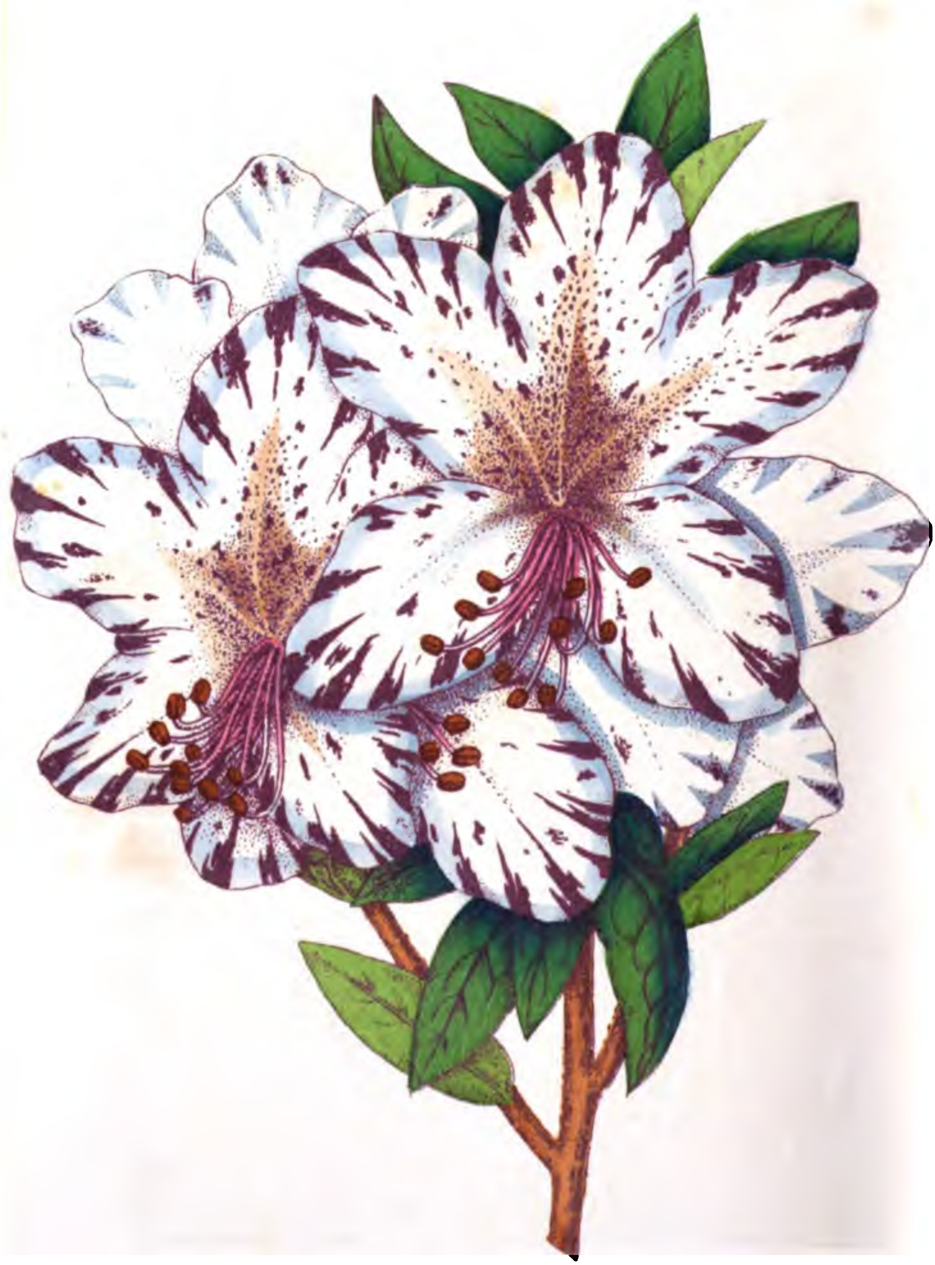
In reviewing the past volume, he trusts it will be found to bear sufficient evidence of his desire to promote its utility, and extend the sphere of its influence.

To the many able contributors who have enriched its pages he owes especial thanks, and solicits a continuance of their support, as well as hints for the improvement of the work.

The Editor begs also to add a word as to the future. With the next volume it is intended to commence a new and elaborate "Calendar of Operations" in every department of Floriculture; in this he will be assisted by two practical men, who stand high in the profession, and a descriptive list of plants that may be had in flower, out of doors, for each month in the year; in which, also, he has had the promise of assistance from more than one quarter.

To all his subscribers he would take the opportunity to suggest, whether they cannot do something to aid the cause of Floriculture by extending the circulation of the work; it is not often that such an hint is given in vain. Numerous letters of approval have been received during the past twelve months, and he trusts, supported by the floral public, to make the work a standard of reference in all matters connected with flowers and gardening in its most ornamental department.

LONDON, *December*, 1858.



INDICA vittata

The Floricultural Cabinet.

JANUARY, 1858.

ILLUSTRATION.

AZALEA INDICA VITTATA.

THE great beauty of the so-called Indian Azaleas (which are in reality natives of China) has induced us to commence the year with the figure of one of the most handsome of this lovely tribe of plants, so remarkable for their almost endless variety, the brilliancy of their colours, and profuse bloom—peculiarities that place them among the first ranks of ornamental plants. Their cultivation is a matter of no great difficulty, not requiring more protection at any time than can be afforded with very little trouble and expense. Possessing such recommendations it is not surprising that they should become universal favourites, and their culture so general. Indeed, the great increase that has taken place in the number of kinds known in cultivation at the present day is an evidence of the favour in which they are held. It is just fifty years since the first *Azalea Indica* was introduced to our country from China, since which (and within a very few years past) there has been great progress in hybridising and introducing such valuable kinds as the one we have selected for our illustration. For these we are mainly indebted to the exertions of Mr. Fortune, as a botanical collector in China, as well as to Messrs. Noble and Standish, for the introduction of new species, and to Messrs. Ivery and others for the production of hybrid varieties.

All the Chinese Azaleas strike freely by cuttings of the young wood, taken off close to the ripened shoots, planted in silver sand, and placed under bell-glasses, in mild bottom heat. As soon as well rooted the young plants may be potted off in good peat soil, mixed with a rather large proportion of silver sand. When in a growing state a little liquid manure is a great assistance to them. They require a light situation in the greenhouse or pit during winter, near the glass. They may be kept in the house until they have bloomed but must be allowed a partial shade; many will do almost as well out of doors, however, and all may be brought out as soon as the flower is past, but placed in a sheltered place. If kept in a cold pit through the winter, they should be brought into the house in February or March to flower. *Azalea Indica Vittata* is a beautifully striped variety, purple on a white ground; it appears to be a natural variety, and has been in cultivation in Chinese gardens for some years, although of comparatively recent introduction to our greenhouses.

ON THE CULTURE OF ALLAMANDA NERIIFOLIA.

BY MR. CHITTY.

ALLAMANDA NERIIFOLIA is a plant that can scarcely be dispensed with in stove decoration, being at the same time one of the handsomest as well as most free blooming things we possess. All the species of this genus are well worthy of cultivation, but for the freedom with which the flowers are produced, although rather smaller than others, the present species is, in my opinion at least, much the best; a plant of *A. Cathartica* with as many as fifty blooms is considered above average merit, while I have seen *Neriifolia* bearing upwards of two hundred of its conspicuous golden blossoms at one time on a single plant. It is also well adapted for pot culture. An outline of the treatment I have pursued with much success will be found below, and is forwarded for insertion in your useful periodical, at the request of several who have admired my specimens, and considered the treatment they meet with at my hands deserving of being more generally known.

Commencing with the soil that I have always found most beneficial, and capable of supplying the roots with the greatest amount of nourishment, I prefer turfy loam, or loam containing a large proportion of fibre, as the top spit from an old pasture, laid in a heap for a year to decompose—of this I take two parts, mixing with it one part of decayed leaf mould and hot-bed manure, and one part of fibrous peat from a common; the whole should be chopped up together, and have enough silver sand intermixed to keep it open and porous. When a young plant is obtained with a single shoot (which are the best to begin with), pinch out the leader at the distance of two or three pair of leaves, this will cause the production of shoots; if, however, the plant has been previously stopped in, the shoots may be equalized. Plunge in a bottom heat at about eighty degrees, maintaining the atmosphere at seventy in the day and sixty at night. Thus situated the plant will make quick growth, when it will require repotting, and free drainage; place it again in the same bottom heat, and syringe occasionally with aired water, not so much however as to sodden the soil. When the shoots have become of sufficient length to bear stopping in, I let them get no longer, but pinch off the extremities at once, and thus produce a second set of laterals, and if the roots be healthy and active they will push vigorously. To form a fine specimen the shoots should be arranged at regular distances, and brought down near the rim of the pot. After being stopped in, for a day or two, it is best to water more sparingly, or the *Allamanda* is very apt to bleed at the wounds—a moderately dry state of the roots will prevent this. As summer advances the temperature may be raised, gradually however, as high as eighty degrees in the day, but kept about sixty-five at night. Moisture is very beneficial while the plant is growing quickly, and to promote this the flues or walks should be sprinkled from time to time; but to prevent too rapid evaporation, when the sun is strong upon the house, the plant should have a light shade. To keep the temperature down to the desired point at night, open the ventilators after sunset, and this is of importance, for otherwise long-jointed wood is obtained, and a good syringing every evening will work wonders under this treatment. Before the new shoots have made much progress, say not more than three inches, I give the plant another shift into a size considerably larger, but avoid injury to the roots as much as possible, and replunge in bottom heat five or six degrees higher than previously, continuing the same as before to shade, syringe, and preserve a moist atmosphere. After this the young shoots will make vigorous progress, and as soon as they are sufficiently long may be tied out in their proper places to strong sticks. If any are found to be getting too much a-head of the rest these must be pinched in, to make a handsome specimen; the lower shoots may be brought down to the rim of the pot, or nearly so, and the rest disposed neatly all round the plant. By the end of August the growth will have been completed for the season, and it is time to check it; from this period the principal object is to ripen the young wood, and the sooner their growth is arrested the better; this is done by reducing the supply of moisture and heat, gradually, however, lest the plant receive a sudden and injurious check. It may have the full benefit of the sun and plenty of air, which will much assist the ripening of the wood; the temperature need not range higher than seventy by day and ten degrees lower at night. At this time, I raise the pots from the plunging material and set them on the surface. In a month or six weeks the wood will be found to have hardened well, and the growth entirely stopped for the season. Throughout the winter air may be given whenever it can safely be done, being careful to preserve the plant from cold winds; the temperature should never exceed sixty by day, and only just enough water be given to keep the plant alive.

When more than one specimen is obtained, a succession of bloom may be secured by starting the plants into growth again at intervals, the first plant being placed in heat by the 20th of January. Give a good top-dressing of fresh compost, and plunge in a gentle bottom heat, with an atmosphere of about sixty-five degrees, gradually increasing as the days lengthen and the plant progresses, which, with free applications of aired water, and occasionally a little liquid manure, it will do; the growth ought however to be steady and not too rapid, otherwise the bloom will be inferior. By the middle of March it will begin to flower, and before the buds expand take care to remove such young shoots as may start among them, and which would only tend to weaken the bloom. After flowering, the plant should be cut down, and having pushed again, the ball may be reduced, repotted, and have every encouragement afforded to make ripened wood before the setting in of winter, when after another period of rest it will afford a fresh display. Plants thus annually reduced will last several years; if however young plants are preferred, cuttings may be struck each year by taking short, stiff shoots with a heel to them, making a smooth cut, and inserting them in silver sand; cover them with a bell-glass and plunge in bottom heat. They will take root in a month if sprinkled frequently with tepid water, and as soon as sufficiently rooted may be potted off.

Allamanda Neriifolia is a native of Mexico. We are indebted to Messrs. Lucombe, Pince, and Co., of the Exeter Nurseries, for the introduction of this fine stove plant to our country about eight years ago.

WHAT IS PROPERLY TO BE CONSIDERED A BRITISH PLANT?

BY AMICUS.

THE question, What is properly to be considered a British Plant? is a very interesting one, though perhaps more easily put than answered; to decide on many plants now found wild in some parts of this country is almost impossible — the point to be decided being whether they were before overlooked by botanists, or have, by some means or other, been conveyed to our island and spread themselves in various directions. Again, some of the rarer plants, acknowledged by the best authorities to be British, and hitherto detected in certain localities only, are found in a new habitat, in like manner the question will arise, were they also overlooked in time past, or have they established themselves in their new position under circumstances favourable to their extension? The earliest catalogue of British plants appears to have been that published in 1650, by William How; in it 1400 plants are enumerated, with the localities of a few of them. His catalogue comprises however many cryptogamic and cultivated plants, as garden vegetables and agricultural produce, we must therefore make a large deduction from the number of plants given by him as British. The next list, by Merret, in 1656, enumerates 1280 species and varieties only, and includes, like the preceding catalogue of How, all the plants cultivated at that time in the garden and field, as well as cryptogams, lichens, fungi, sea-weeds, and mosses. It will appear therefore, from a comparison of the respective numbers, that this enumeration is not so complete as the first. The first English catalogue of real merit, and to which any importance attaches, was drawn up by the learned Ray, and given to the world in 1670. The first edition contains about 1050 species altogether, admitting the several varieties of wheat, pease, beans, etc., as well as cultivated vegetables. The second edition, seven years after the first, comprises eleven hundred names, making an addition of fifty species observed by him since the publication of his former "*Catalogus plantarum Angliæ.*" Ray's "*Synopsis Plantarum*" of 1696 (the last edition published during his lifetime), describes 1150 plants, but includes cryptogams and cultivated vegetables. If we deduct one hundred from the number of species given by Ray for each period, to eliminate the cultivated and cryptogamic plants of his catalogues, which will with great probability be very near the truth, we find the remainder to stand as follows:—In 1670, 950; 1677, 1000; 1696, 1050 species. In 1796, Hudson's "*Flora Anglica,*" edited by Withering, contains 1350 species, while the latest catalogue published (that of the Botanical Society), enumerates more than 1460. To what shall we refer the gradually increased number of described species—to a real increase of the number of plants found wild in this country, or to the fact that many were overlooked by the early botanists or confounded by them with other species? The truth probably lies between the two—some plants have undoubtedly been introduced between the periods of time referred to, while others may be with great show of probability considered as overlooked.

To answer the first question that may be proposed, what species are truly British?—will, I am persuaded, be found almost if not altogether impossible. That some plants have existed on this island ever since its first formation, at whatever date that may have been, cannot be doubted, also that a very considerable number of plants have been imported since that time from other countries, although now very common, and that either by accident or design. To fix the date of their introduction or the source whence they were derived, although an interesting one, is certainly a most difficult point to decide, and appears in most cases hopeless.

Some of the scarcest plants may be as truly indigenous as others embracing a wider area, while we know there are many others widely distributed whose introduction is well authenticated. From these considerations I hold that it would be more convenient as well as rational to adopt the term *spontaneous* rather than *native* as applied to plants found growing in this country, and this at least where any plant grows in quantity and appears likely to continue, through being well established in any locality. In confirmation of this view, which I have entertained for some years, the learned author of "*British Plants*" observes, "it does not follow that a plant is only a casual visitor, though we may be able to learn little or nothing of its antecedents; and although it may be on the decrease, for many or several plants are manifestly in the same situation without the slightest imputation on their characters as natives. It is still less to the purpose to infer that the plant must be of recent origin, because the locality where it was noticed had been repeatedly visited by exploring botanists. The discovery of *Lilium Martagon*, in a copse at the back of Box Hill, in the early part of the summer of 1840, and that of *Simethis bicolor* in Dorsetshire, about seven years later, are proofs that undetected plants may and do exist in spots repeatedly visited. Copse plants are especially liable to be thus overlooked. *Helleborus viridis* grows abundantly in a copse-wood of a few acres in extent on the southern verge of Ranmer Common, opposite Bury Hill, a field's length or so from 'The Fox,' a rustic, lonely public-house, on the ancient pilgrim's-path from Winchester to Canterbury, through Alresford, Farnham, Guildford, Dorking, etc. When the coppice-wood is six or seven years old there is scarcely a plant of the Hellebore to be observed; but in two or three years after the wood has been cut down it grows vigorously, and produces flowers and fruit in abundance, and cannot be overlooked in spring or in early summer. Ranmer Common has been, like Box Hill, frequently visited; but there does not appear to be any record of this plant having been seen there previously to 1838. Nevertheless the plant is well known by the woodcutters and others in the neighbourhood."

(*To be continued.*)

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ON THE CULTURE OF BORONIAS.

BY MR. JAMES CASE, GARDENER, HINMORE LODGE, NEAR STOKE.

ORNAMENTAL greenhouse plants are always valuable, and more especially so when to beauty of flower they add neatness of growth, pretty foliage, and are not troublesome to cultivate. Boronias not only possess these qualities, but are additionally worthy of a place in every greenhouse from the length of time through which they may be had in bloom, in fact covered with flowers. I can scarcely conceive a more beautiful thing than a well grown specimen of *Boronia pinnata*, *serrulata*, or *Drummondi* when in full blossom. These plants thrive best in sandy peat of a fibrous nature mixed with a very little leaf mould, loam, and some silver sand; it is too often the case to find Boronias grown in a soil with but little fibre in it, pure peat will not suit them, nor will it do if sifted fine, but should be chopped up into lumps about the size of small nuts; the leaf mould and loam being added and well mixed up, add enough silver sand to make the whole very porous. In such a compost all the species now in cultivation will grow far better than in any other mixture, provided the pots be well drained. The plants should be repotted about the end of April, and placed in a gentle heat, where they are protected from cold draughts of air. If, as is generally the case, they grow quickly, the shoots will require stopping in, once or twice, and they may have another shift about midsummer. While growing, partial shade from the sun in the middle of the day, and moderate watering will be found very beneficial. Too frequent use of the watering-pot should nevertheless be avoided, and only sufficient given to keep the roots moderately damp. At the commencement of autumn water must be administered more sparingly and the supply diminished by degrees, as also the temperature of the house, in order to bring the plants to a state of rest. The foregoing are the principal points to be attended to in order to secure healthy plants and a fine bloom. Some persons find a difficulty in propagating cuttings of Boronias, but this is, I imagine, in consequence of being unacquainted with the proper kind of cuttings to put in, which should be made of the young shoots, with short joints, and nearly every leaf cut off excepting two or three at the upper extremity. The cutting pots must be well drained, and filled with fibrous peat, etc., as for the plants, up to within an inch of the rim, and over this a layer of silver sand ought to be placed. If inserted in this, and plunged in rather brisk bottom heat, covered with bell-glasses and shaded, there will be few of them found to fail. As soon as they have made nice roots, which may be known by turning out the ball, they must be potted off, using the smallest sized pots, and placed in heat again for a few days to establish them in their new quarters. I recommend the use of very small pots for the young plants, because at all times the shift should be one that does not give too much room for the roots. Even when out of flower, Boronias, if nicely grown, make pretty bushes; their neat, glossy, dark green foliage always looks refreshing and pleasing to the eye. All the species known hitherto are New Holland plants, and the best of them are the following; a few others have been introduced, but are not of so much interest as these, and moreover difficult to preserve. *Boronia anemonifolia*, a free grower, with rose-coloured flowers—*crenulata*, rounded leaves, closely set, a free blooming, pink-flowered kind—*Drummondi*, one of the best, very free blooming, flowers bright rosy-pink, foliage neat and small sized, lively green—*mollina*, a free grower, covered with pretty lilac blossoms—*pinnata*, another of the choicest, flowers lilac, in bunches, very free blooming, and neat in appearance—*serrulata*, bright rosy-red, resembles *crenulata* in many points, and is slightly sweet scented; this should be in every collection—*tetrandra*, (synonym *microphylla* of some) pale lilac flowers, and neat foliage. The above may be had at most of the nurseries, nice little plants, at from eighteen-pence to half-a-crown each, and deserve a place in every greenhouse, however small, for if properly managed they will be sure to compensate for the little trouble they require at the amateur's or gardener's hands; when, however, they are treated in an unsuitable manner, few plants look worse or more unhealthy.

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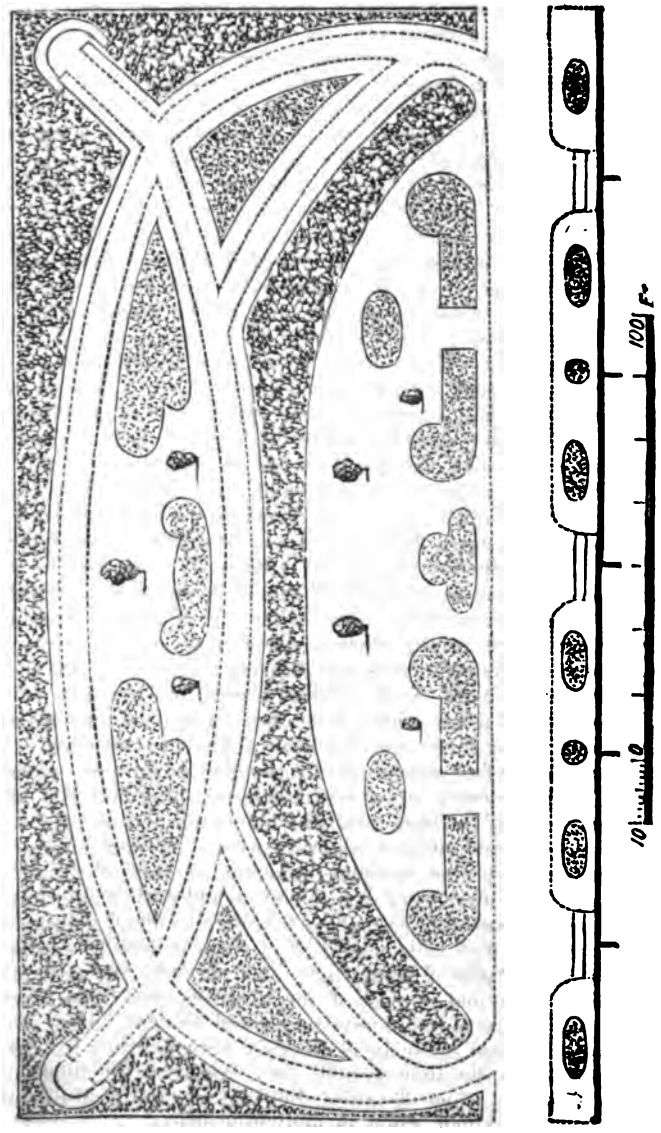
DESIGN FOR A TERRACE GARDEN.

BY T. RUTGER, ESQ.



THE accompanying design is intended for a Shrubbery Flower-garden, to be enjoyed in common by the occupants of six houses, as indicated in the sketch. In order to give variety, and a greater length for walking, the walks are made so as to divide the ground as it were into two sections, and in order to prevent their being seen from the houses, a closely-planted Shrubbery is given—a feature in laying out pleasure-grounds which should always be studied. The clumps and shrubs in the smaller lawn would have nearly the same effect if judiciously planted. A site for an alcove or covered seat is indicated in each corner of the Shrubbery, and embellishments in variety may be introduced at pleasure.

THE MAGNOLIA, ITS VARIETIES AND CULTURE.

BY A NOBLEMAN'S FLOWER GARDENER.

MAGNOLIAS constitute a family of trees and shrubs valuable for their noble foliage and strikingly handsome blossoms; this remark applies more especially to those species that will flourish with us in the open air. The frame and greenhouse kinds are by no means so desirable as *grandiflora* and the varieties raised from that and other hardy kinds. There are about a dozen sorts in general cultivation, in most of which the prevailing colour is white with various tints of purple. The majority of these plants are natives of the temperate districts of North America, where they are very conspicuous inhabitants of the woods and forests, although a few are from Japan, China, and the Himalayas, in which locality Dr. J. D. Hooker tells us he observed the ground white with the multitude of their large petals, and the woods odoriferous from their powerful fragrance. Some are deciduous and others evergreen. The best plant of the genus is undoubtedly *M. grandiflora*, introduced from America in 1737, and generally well known, together with its varieties, the most deserving of which are *M. grandiflora præcox*, an early flowering kind of this class, coming into blossom in May, and continuing throughout the summer months. This is as well adapted as any for planting against a wall. *M. grandiflora exoniensis*, a tall shrub, and the best for planting on a lawn. *M. grandiflora obovata*, distinct from either of the above, and well deserving of being grown, although it seldom blooms so freely. The foregoing are all evergreen kinds. Of the deciduous Magnolias the choicest are, *M. purpurea*, which is a Japan species, blossoming in April and May. It is very ornamental, especially against a wall, where it will grow to ten or twelve feet high, as a shrub it seldom attains more than half that stature. The flowers are white on the inside of the petals and purple outside, but require fine weather to bring them to perfection. Its foliage is fine and smooth. *M. purpurea gracilis* has slender leaves, and not so fine a green as its parent, but the flowers are darker purple on the outside. *M. tripetala* sometimes grows ten yards high, and bears large handsome blossoms, measuring from six to eight inches across, whitish or cream coloured. The leaves are rather narrow, and become in autumn dark brown or black. It is one of the most hardy sorts we possess. *M. acuminata* will grow taller than the preceding, and nearly as hardy. The flowers, which open in May and June, are but slightly fragrant, not nearly so rich as those of *M. grandiflora*, and are slightly yellow on the inside. Its leaves, like those of *tripetala*, turn deep brown and black before falling off. *M. conspicua* forms a small tree of from twenty to thirty feet high, producing its leaves after the blossoms, which are large, erect, white, and very fragrant. It flowers from February to April, and is a native of China, from whence we received it in 1789. Severe winters tell on it, however, and when grown as a standard it should be placed in a sheltered situation; it never does so well as when against a wall. A variety of this, named *Soulangeana*, has larger blossoms, more or less tinted with purple. *M. glauca* is a small tree, retaining some of its leaves, and therefore may be considered as sub-evergreen. It is one of the earliest (if not the first) introduced to England, and comes from low, swampy parts of North America in temperate latitudes. Its flowers are rather small, white, but very sweet-scented, opening in June and continuing till the beginning of September. The tint of the decaying foliage is brown and yellow.

Magnolias, for the most part, and especially the varieties I have enumerated in the foregoing description, will strike readily from cuttings or may be increased by layering the branches, which is the plan most generally adopted with hardy species, the tender sorts are usually struck from cuttings. The best time for layering is the autumn, but it may be done at any time until February. The branches to be layered must be slit close below a leaf or joint, pegged down, and covered with soil in the usual manner; neither shorten the branches nor take off any of the leaves. By the next autumn they will make nice rooted plants, when their connexion may be severed, and the plants potted and plunged in the soil which is necessary to preserve their sensitive young roots from the frosts of approaching winter; it is also as well to shelter them in severe weather with mats over hoops, particularly while young, as they are tender until they become established and have plenty of good roots. To obtain a stock of any of the hardy kinds the best way is to plant a shrubby specimen in a sheltered corner of the garden, with room all round it, and to bend down and layer every branch that is of sufficient length to reach the soil, and there will always be a succession of shoots to lay down, as fast as the others are taken off. The Chinese sorts, and indeed most of the Asiatic ones, do well when inarched, budded, or grafted on *purpurea*. Inarching is the quickest way of making a large plant at once, although the quantity of wood made use of for inarching would make several grafts, or furnish many buds, so that size is the only advantage gained, and this only for a time. Where a good duplicate specimen is required, instead of stock, this is not of much consequence however. The method of inarching is known to every one who has the least pretensions to be considered a gardener, but for the instruction of such of your readers as may not be sufficiently acquainted with the *modus operandi*, I will explain the way in which this can be performed most successfully. In the first place we obtain a good strong stock of *purpurea* of the desired height, and place it near enough the plant that is to furnish the branch to be inarched, which should be such as can be spared without injury and likely to form a nice plant. The two should be tied so that neither may suffer any disturbance. One side of the branch must then be pared flat for a length of about three inches, and the stock also pared to correspond, so that, when fitted together, the bark of each may be in close contact and unite, which in due course they will do after being firmly bound together. If the stock and branch are of different sizes there may be some little difficulty in fitting the one to the other, in which case it is not very material to make both sides fit provided the bark of each is in contact on one side. The season when inarching should be performed is just before the plants begin to make their growth, when the subsequent flow of sap will ensure a ready union of the two parts.

All the North American Magnolias may be raised from seed, sown in pots or pans rather widely, covered about half an inch deep with soil, and placed in a warm frame. When the young plants are of sufficient size, pot them off and return them to the frame to establish them, after which they may be placed in a cold pit. In this state they are very susceptible of harm, from cold winds particularly; let the pit be shut up at night as winter draws near, but give them as much air as they can have with safety. They will require repotting as they progress, and when in thirty-two's they may as well be sunk into the soil of the pit; this will be a great security against injury, either from the roots becoming too dry or being injured by frost.

The cultural directions for hardy Magnolias are few and simple. There is one point, however, of great importance, and that is to have the soil well drained, and in a situation that is sheltered from the north and easterly winds. The place intended for a standard should be prepared for a yard all round and two feet deep; it should be composed of good loam and turfy peat, in equal proportions. When put in, the roots should be well spread out, and not placed too deep, as it is injurious to let the collar of the root be under the soil.

Although *Magnolia grandiflora* is called hardy, it is liable to suffer from any great degree of frost when grown as a standard, it is on this account more frequently trained along a wall, the side of a house, etc., than as a standard, although few trees or shrubs can compete with it under favourable circumstances. The best situation against a wall is facing the south or south-west. At White Knights I remember seeing, many years ago, a long wall covered with twenty fine spreading plants blooming in perfection, and causing such an impression that I shall always remember the sight with admiration.

ON THE CULTIVATION OF LILIUM LANCIFOLIUM.

BY MR. THOMAS BURROUGHS, RYDE.

LILIUM LANCIFOLIUM, with its several varieties, are easily cultivated, they are, consequently, well adapted for amateurs, and when grown in pots require but little attention; their fragrance and beauty render them useful ornaments for the greenhouse. Strong healthy bulbs may be had at a moderate price of any of the seedsmen, consequently a goodly display may be had at the expense of a comparatively small outlay. The compost most suitable for potting them in is three parts of peat soil, coarsely chopped, with one part good strong loam and a little gritty, coarse, white sand. For effect, it is best to plant three bulbs in a pot, such as are "double crowned" are most suitable, and if selected from strong roots, are better than such as have only single eyes. The pots should be twelve or fourteen inches diameter, in which the bulbs are planted at once without after shifting, as I have always found plants of this class do better on the one shift system; plenty of drainage is essential. Fill up with compost to about three inches of the rim, place the bulbs at equal distances on the surface, and cover with another inch of soil, leaving the upper portion of the bulbs exposed. After potting they should be placed in a cold pit, or under the plant stage in a greenhouse, if care be taken that they are not wetted by drip, and, indeed, they ought not to be watered until they begin to push, when, if under the greenhouse stage, remove them into a frame or pit; and, wherever they are placed, let them, under favourable circumstances, have plenty of air. Give them a good watering in this stage of their growth, but they do not yet require frequent waterings. Keep a watchful eye on them as they advance, that they do not become infested with the green fly, to which they are liable; and if any of these troublesome insects appear, take the plants out of the frame and give them a good syringing with tobacco-water, holding the syringe over the central bud, that the tobacco-water may penetrate among the bases of the young leaves, where they are apt to suffer most from the attacks of the aphides. Afterwards they must be syringed with clean water, to wash the stain of the tobacco off them. By the latter end of March, or early in April, if the season is a favourable one, they will be growing vigorously; they will then require a greater quantity of water, and may be syringed every genial or mild morning. They must now also have an abundant supply of fresh air. If they are in a frame, it will be a good plan to raise it from the ground, by putting a brick under each corner, by which they will get plenty of under current; but the frame must be let down again if the weather should turn out frosty, or cutting north-east winds should prevail, as is sometimes the case. About the latter end of May they will require turfing up; that is, a square box of fibrous peat should be built up above the pot rim, and pegged together so as to enclose the base of the stems; this must be filled up with the same kind of compost as that in which they were potted, only made finer and more sandy; they will root into this soil, which will assist them very much. The plants must be tied up to the form required, and put into the greenhouse, if the frame is not deep enough to hold them; they should be raised up near to the glass that they may not draw, which they are very apt to do when growing freely. Continue syringing each morning, if circumstances permit.

After they become pot-bound, which will be the case some time in June, water regularly with soot-water, which gives them a very healthy dark-green colour; this soot-water is made by putting three pecks of soot to eighteen gallons of water, which will be quite strong enough; stir it well up together, and after it has settled skim off the top, and it is then fit for use. Apply this soot-water until they show signs of flowering. When the flower-buds appear, they may either be kept back or hastened—the latter by placing them into the stove, for they do not draw up after they have reached this stage of their development, and will bear a very high temperature if freely watered and syringed. Where there is, say, a dozen plants, it is advisable to push on some of them in the stove; and to keep the others in a cool, shady place, so as to make a succession. When the bloom is over turn them out of doors and expose them fully to the sun, that they may ripen well. In case of heavy rains, the pots should be turned on to their sides so as to keep the bulbs somewhat dry, and, to the same end, diminish the watering gradually, until they become quite so; then cut off the stems, and store the pots away in some dry place out of doors until the next season.

In February following they may be turned out of the pots, the finest bulbs selected for pot cultivation, and the rest planted out in a prepared reserve bed of soil in the garden. The soil of this bed should be about eighteen inches deep, and rather sandy. Some of these bulbs, after a year's growth, will be strong enough to transplant for flowering into a bed in the flower garden, when they will prove, for late flowering, one of the most attractive of groups.

Before they are planted out, however, the bed should be thoroughly drained, as this is a most essential requisite, and the same compost made use of as before recommended for their cultivation in pots. All offsets must be taken away when the plants are annually taken up for this purpose, and a stock or nursery bed may be formed with these for a future supply of flowering bulbs. A mixed bed makes a fine show, especially if planted with judgment, and it is my practice to place the strongest bulbs of *L. speciosum* and *L. punctatum* in the centre, next the strongest of *L. album*, and lastly the weaker ones of both the above mixed. The most favourable time for putting them in the ground is towards the close of February or early in March, before they show any signs of growth.

ON THE CULTIVATION OF CHRYSANTHEMUMS.

BY MR. SAMUEL BROOME, TEMPLE GARDENS.

THE CHRYSANTHEMUM having become such a popular flower, both for border and greenhouse decoration, and having myself for some years grown it very extensively with much success, perhaps some practical remarks from my pen, the result of my humble experience, may be of use to some of your numerous readers, and they are welcome to it. Besides the great beauty of its flowers, the Chrysanthemum is always green, growing and flowering where other plants die, and especially in confined places in large towns, where a bit of green is always a great boon; we need not wonder at its popularity, and indeed this flower has become such a favourite round London, that there has been not less than five annual exhibitions this season, attended by hundreds of visitors, while my collection in the Temple has been visited by at least 30,000 persons, rich as well as poor, and all appeared highly gratified with the sight, many seeking information how they were grown, and wishing to know the leading varieties I could recommend—and there is little doubt that many of them subscribe to the *Cabinet* (in fact, I know such is the case). I will now impart my method of culture, which is as follows:—For specimens to grow for exhibition or private use I recommend taking off cuttings in November, or as soon as possible after that time; let them be placed in cold frames, or sheltered places where the frost will not harm them, so that you may have the plants well established by February to repot and stop. To get laterals, if intended to be grown in eight-inch pots, they should be stopped three or four times up to the first of August, but not afterwards. If Pompones, let them be carefully pegged down all round the pot, using as few sticks as possible—watering well with plain water when they get the least dry, afterwards with liquid manure; it is necessary to observe here, however, that hot manures should not be used for this purpose in July and August, but liquid manure made from cow-dung, or such cooling liquids only; keep them plunged in a shady part of the garden where the sun goes off from eleven o'clock till about three or four. Large ones may be grown the same as Pompones, except as regards pegging down, these should be tied out to sticks. The large specimens intended for cutting for exhibition purposes ought not to be stopped at all, but have all their laterals taken off as soon as ever they show themselves, and when the crown divides itself, say three or four shoots, take off every lateral until they show the flower bud, then disbud them all but one on a branch, choosing the best and most promising one; often sprinkle the plant in the evenings when very hot and dry, with plenty of *weak* liquid manure, and if to be shown in pots, not neglecting to water even for an hour, or you lose the foliage. Cuttings put in in February or March do very well, but never make such fine plants, nor bloom so large and early, as when started in November, as is my practice; and although there are some who maintain they can do as well with striking as late as the month of March, I can only say they do not do so with me, and I am fully persuaded my assertion will be borne out by all who put it to the test of proof, and one fact is worth many arguments.

The common border varieties I plant in March, after subsoiling the ground well with Parkes's fork, about eighteen inches deep, with a good dressing of any manure I can get. I then divide the old roots into three or four pieces, planting them in patches, and when they grow up a foot high I peg them down to save so much tieing up, as well as to prevent their overgrowing the spring flowers; this practice also serves to keep a good foliage and flowers them dwarfer. When they grow up again I begin to tie them up, and so continue till the blooming season arrives; they should not, however, be tied up too much, as this makes them look anything but what they ought. A few may be grown large by treating them the same way as the show flowers—taking off the laterals, disbudding, and occasional watering of liquid manures. The pot compost I use is rotten dung with maiden loam or old turf.

The following select varieties I have proved to be the best with me, out of five hundred sorts grown for the open border—

White.
  Vesta.
  Marchioness.
  Madame Laborde.
Yellow.
  Temple of Solomon.
  Annie Salter.
  Delight.
  Chevalier Dumège.
  Plutus (late blooming.)
  Queen of Yellows.
  Serb d'or.
  Comte de Rantzeau.
Red.
  Claudius Ptolemy.
  Madame Passy (late blooming).

Blush and Pink.
  Alfred Salter.
  Queen of England.
  Phidias (new).
  Cristine.
  Madame Andre.
  Webb's Queen.
  Princesse Marie.
  Hermione.
  Madame Miellez.
Carmine rose.
  De Crequi.
  Beauté du Nord.
  Bossuet.
  Aregina.

Orange red and Nankeen
Cassy.
Anaxo.
Ruth.
Poudre d'or.
Alsobade.
Bronzed orange, and Red.
Auguste Mie.
Christophe Colomb.
Madame Cammerson.
Lothario.
Sulphur.
Formosum.
Jenny Lind.
Rose.
Leon Lequay.
Minerve.
Versailles Defiance.

The above are certain to bloom well and give satisfaction in the open border, and if properly attended to, by tieing up and watering well in hot weather, will make a good display.

I have added a list of twenty good show flowers, all incurved; on account of being so late some of them will not suit for out-door bloom.

Etoile Polaire, yellow.
Vesta, white.
Anaxo, orange-red.
Delight, yellow.
Pluto, yellow.
Goliath, white.
Hermione, blush.
Queen of England, blush.
Alfred Salter, pink.
Lothario, ruby red.
Aristée, lilac.
Lysias, red and orange.
King, peach.
Themis, rose.
Pio Nono, India red.
Nonpariel, lilac
Aregina, amaranth rose.
Beauty, peach.
Albin, crimson.
Dupont de l'Eure, orange.

The following Pompones succeed either in pots or borders, and are recommended for general purposes—

Bob, crimson.
Brilliant, crimson.
Cedo Nulli, white.
Drine Drine, yellow.
Solfaterre, yellow.
Comte Achille Vigier, salmon.
General Canrobert, yellow.
Vicomte de Caumont, red & yellw.
Helene, rose.
Fleurette, violet purple.
Madame Rousillon, rose & white.
Mustapha, brown.
Sainte Thaise, chesnut.
La Vogue, yellow.
Aurore Boreale, orange.
La Promise, rose and yellow.
Argentine, white.
Bijou de la Horticulture, sulphur.
Modele, white.
Riquiqui, plum.
Duruflet, rose.
Dr. Bois Duval, red.
Berrot, yellow.
Adonis, rose and white.

There are some new varieties to be sent out by Mr. Salter this year that promise to be first-rate, I have ordered twenty-four of them, and if not already noticed by you, I will give the descriptions next month.

[We can bear testimony to the splendid show that our respected correspondent made this season; his Chrysanthemums have become one of the annual sights of London, well grown and flowering in perfection so near the heart of the city. The promised descriptive list will be very acceptable for a corner in our "new and select florists' flowers."—Ed.]

NOTES ON THE AMARYLLIS.

BY THE FOREMAN OF A LONDON NURSERY.

THE accompanying cultural remarks and descriptions are forwarded for insertion in the *Cabinet* at the request of an old subscriber to your valuable publication, who viewed the fine collection under my care when in bloom last season,—they will probably be interesting to others. When in flower they present a scene admired by every one, for few bulbs can compete with this fine tribe for size, beauty, and diversity of colours. Notwithstanding these attractions the management of the Amaryllis would appear to be but imperfectly understood, and consequently they are cultivated by a comparatively limited number of persons, being, through unsuccessful treatment, very uncertain in flowering.

The soil most suitable for this genus is good loam, with about one-fourth leaf mould and sand, well incorporated together; manure is unnecessary, and should never be used. In spring they are started into growth by a gentle bottom heat, and as they make progress should be encouraged by increased heat and moisture. A pine pit is a very suitable place for them at first, and is the quarters I always select. They here make a quick growth, and as they come into flower have liberal waterings with reduced temperature. In autumn their growth is completed, and as soon as the foliage decays the pots containing the bulbs are placed on their sides under the greenhouse stage, where they are kept cool and dry until spring.

The most beautiful among my collection are the following, although there are many others almost equally good, yet not sufficiently distinct to require a separate notice here.

Aspasia, white and bright rosy crimson.
Beauté Incomparable, white, shaded with rose and purple.
Boerhaave, white and rosy crimson.
Britannicus, scarlet striped.
Cæsar, reddish brown, with green and dark stripes.
Cleopatra, a large deep red flower.
Cornelia Hardenberg, deep rosy crimson, with white stripes.
Czar, deep orange.
Diomede, white, with purplish crimson stripes.
Douglas Jerrold, clear red, marbled with white.
Doctor Patterson, orange, with white marking.
Duchess of Hamilton, rose, striped with white, very fine and showy.
Earl of Cardigan, deep rose, bordered with white.
Elegans, white and purple crimson.
Extravaganza, deep blood colour, with clear white markings.
Frederick William, intense rose, with light margin.
Generalissimo, bright scarlet, with white and green stripes.
Graf von Bernstorff, light purple.
Great Eastern, brilliant orange, with white markings, fine.

Hooft, fine scarlet, with green and white stripes.
Jenny Lind, white, with rosy crimson or purple markings, fine.
La Déesse, white veined and banded with scarlet.
L'Indespensable, scarlet, with white centre.
Ma Fiancée, white and deep rose.
Miniata, reddish brown, with white stripes.
Miranda, greenish white, with red stripes.
Montezuma, orange scarlet, with wide stripes of white.
Pagoda, scarlet, with green centre.
Pallas, crimson red, with white stripes.
Ponçeau Unique, red, with white spots.
Prince de Moskowa, orange red.
Prince Napoleon, orange with clear white stripes.
Queen Mary, deep purple, a small flower.
Rosa Mundi, rose, with white border.
Royal Bride, lilac, with white markings.
Rubens, brownish red with white and green markings.
Trafalgar, dark red, with white br.
Victorieuse, white striped, with rosy red.
Vittata purpurea, rosy purple and white.

Besides the many species—natives of Brazil and the Cape principally—numerous hybrid varieties afford room for an extensive choice. The above are generally somewhat high in price, but will well repay the outlay necessary to obtain them by the splendour of their blossoms, and the little trouble they give in cultivation.

NOTES ON NEW AND SELECT PLANTS.

LUPINUS MENZIESII. Nat. Ord. *Leguminosæ.*—A fine Lupine with rich golden or orange-coloured flowers, has been in bloom at Kew during the past season. Sir William Hooker considers it identical with *L. Menziesii*, described by Agardh, but of the correctness of this conclusion there appears some doubt, Dr. Terry asserting that species to have white flowers (See *Botany of Captain Whipple's Expedition*). The plant is somewhat shrubby, and the flowers, borne in long spikes, are truly ornamental. A native of California. (*Bot. Mag.*, 5019.)

2. Eichornia tricolor. Nat. Ord. *Pontederiaceæ.* An aquatic from Brazil, allied to the *Pontederias.* The flowers are borne in a spike, and measure about an inch across; lilac and pink. It requires stove heat, and will grow well under such circumstances if grown in a pot plunged in a tank of water, where the depth is sufficient to accommodate the stems, which reach from one to two feet in length. It flowers in summer very freely. (*Bot. Mag.*, 5020.)

3. Begonia laciniata. Nat. Ord. *Begoniaceæ.*—This is a striking addition to the already large number of ornamental Begonias, for seeds of which we are indebted to Dr. Royle of the India House.

Its blossoms are very large, indeed may rank with the largest of the genus, and measure fully two inches across, whitish or sulphur coloured, the sepals covered with a bright red down; the chief attraction of the plant consists, however, in its cut leaves, from five to six inches across, which are irregularly margined with a deep bronzy black band, and blotched with the same in the centre. *B. laciniata* grows about two feet high, and is readily increased by cuttings; like others of this genus, young plants flower more freely than older ones. According to Dr. Wallich, it inhabits Silhet and Nepaul, while Dr. Wallich gives it as a native of the Garrow Hills in eastern Bengal. (*Bot. Mag.*, 5021.)

4. ILLAIREA CANARINOIDES. Nat. Ord. *Loaseæ.*—A tall, rambling or climbing hardy annual, somewhat like a *Loasa*, to which it is allied in structure. Its blossoms, consisting of fine petals, are about two inches and a half long, by as much across the mouth, of a dull brick colour, with yellow margin. The leaves are opposite, borne on long stalks, pinnatifid and dentate, much reticulated or veined, giving them a rough appearance, their colour a dark green. The plant will attain ten or twelve feet in height when trained over a trellis, but seems unlikely to find much favour, as Loasa-like, it stings, and through it a person employed in the Kew establishment was a sufferer for some weeks from this cause. It is a native of Central America, where it was discovered and introduced to Europe by M. Warsczewicz. (*Bot. Mag.*, 5022.)

5. RUBUS NUTANS. Nat. Ord. *Rosaceæ.*—An Indian Raspberry, forming a small, but branching shrub, destitute of spines, but clothed with long purple hairs; the leaves are of a dark glossy green, and cover the ground like ivy; the flowers are white, but the calyx of a brilliant crimson hue. It is a native of Sikkim, and other districts of the Himalaya, where it grows at an elevation of from eight to eleven thousand feet, and flourishes here in the open border, in damp peat soil. (*Bot. Mag.*, 5023.)

6. CYPRIPEDIUM FAIRIEANUM. Nat. Ord. *Orchidaceæ.*—One of the most beautifully marked of this interesting genus was exhibited lately at the Horticultural Society's show, Willis's Rooms, by Mr. Fairie of Liverpool, after whom the plant has been named. The flowers are large, about three-and-a-half by two inches over, arising from a terminal, sheathing, and somewhat woolly bract; the upper sepal is very large, and broad in proportion, pale greenish-white, exquisitely veined and reticulated, with deep purple and green stripes; the two lower sepals are much smaller, pale coloured, with streaks of purple and green; the petals are curved, and resemble the horns of a buffalo, white, delicately streaked with purple and green; the lip is large, and inflated, olive-green, veined with purple; the ovary is long, and of a deep, dull purple tint. Mr. Fairie, we are informed. obtained it at a sale of Assam plants. (*Bot. Mag.*, 5024).

7. STREPTOCARPUS GARDENI. Nat. Ord. *Cyrtandraceæ.*—*S. Rexi*, well-known as the original type of this genus, bears solitary flowers

S. Gardeni, is, however, distinguished by its stalks being mostly two-flowered. Like the former species, the colour is pale blue, inclining to lilac, but the tube is lighter, and tinged with green; the leaves also are longer and more ornamental, much nerved, and crimped. *Streptocarpus Gardeni* is an inhabitant of the same district as *S. polyanthus*, (recently noticed), having been raised accidentally at Kew, in the soil accompanying plants from Natal, forwarded by Major Garden, whose name the present species bears. It requires stove treatment, and a humid atmosphere in the growing season. It is readily increased by propagating the leaves, or by seed. (*Flor. des Serres*, 1214.)

8. HELICONIA BIHAI. Nat. Ord. *Scitamineæ.*—A fine old stove plant, from South America and the Antilles. In habit it resembles a *Strelitzia* or more closely *Musa coccinea.* The flowers are insignificant, but the bracts, bright yellow and crimson, are ornamental. The chief attraction of the plant consists, however, in its foliage, which is large and handsome. (*Flor. des Serres*, 1215.)

9. RHODODENDRON MACROCARPUM. Nat. Ord. *Ericaceæ.*—Under this name M. Van Houtte has received seeds from the mountains of Bhotan. All that is known of this remarkable plant at present is, that its capsules, or seed vessels, are quite monsters in their way, and that the leaves also are very fine, as will be seen by an inspection of the figure given in M. Van Houtte's excellent work "Flore des Serres," p. 87 of the present volume. We wait with impatience the flowering of this fine plant, respecting which the editor of the above work asks, "What will be the dimensions of the blossoms?" Seed may be had of M. Van Houtte, at six francs the packet.

NEW AND SELECT GARDEN HYBRIDS.

THREE CARNATIONS.—M. Van Houtte has given a beautiful plate of seven varieties of these charming plants in his last number, which gives us a proof that our neighbours of the continent are the possessors of some of the most attractive of this tribe in cultivation.

2. EARLY TULIPS.—Although by no means new, early Tulips rank with the most desirable plants for decoration at a time when flowers are most valuable. The beautiful Van Tholls, and double Tulips, so charmingly represented in "Flore des Serres," are faithful delineations of nature, and serve to show how nearly the painters' art can approach it, aided as it is by the latest improvements in chromo-lithography, and colouring by hand, for excellence in which Belgium is much a-head of this, or indeed any other country. What can be more exquisite than the figures of "*Tulip, Koning der Blauwen*," or "*Double Hâtive, Marriage de ma Fille?*"

3. Hyacinths.—*Anna Carolina* and *Bouquet Royal*—the former one of the best single yellows, and the latter the well-known fine double blush with pink eye, are given by M. Van Houtte as the best in their respective classes, and certainly the representations given of them do full justice to the cultivation of Hyacinths for which our friends in Belgium and the Low Countries are so celebrated.

QUESTIONS, ANSWERS, AND REMARKS.

Spring Management of Bedding or Shrubby Calceolarias.—I should be glad to receive a little instruction respecting the best way to manage these plants after the end of February till the time for planting out. Would they do in a frame facing the north, and with what protection?—*A Young Gardener.* [You may place your bedding Calceolarias in a cold frame early in March with safety, indeed no other situation will suit them so well from the beginning of March, if in an open situation. Some fern straw, or litter should be placed round the frame if there be likelihood of severe weather, as is often the case at that period. The pots had better be plunged in ashes, and the plants placed so that there is a little free space round each. In fine weather remove the lights, and give air. Avoid too much moisture, and keep the plants clean, and free from decayed foliage. When frosty nights appear probable, cover up in time.—Ed.]

Shrub for a Hedge.—Wishing to form a low live fence, not more than four feet high, I should prefer a flowering shrub for the purpose, and one whose roots will not spread much near the surface, being intended for the back of a narrow border. The advice of the Editor or one of his correspondents will confer an obligation on *A Clerical Subscriber.* [Perhaps nothing would answer your purpose better than *Cydonia Japonica*, (Syn. *Pyrus Japonica.*) This is a plant that grows close and flowers freely, making a beautiful display when its bright scarlet flowers are out; it may be kept the desired height by a little attention, and sends out but few roots. It is deciduous, however, and consequently is not very attractive in winter.—Ed.]

Plants for a Gold Fish Globe.—Can you tell me the names of such plants as will grow in a globe along with my gold fish; I have frequently seen aquatics along with the fish, but am at a loss what would be proper for the situation, and through not knowing the names do not know what to get.—*L. L.* [We believe the frog's-bit, *Hydrocharis morsus-ranæ*, a pretty little white flowered, water-lily looking plant, does well in such situations; it is found in most ditches, along with *Ranunculus aquatilis* which is also frequently used for the purpose, and *Anacharis alsinastrum*, to be found in most streamlets, or ponds.—Ed.]

Camellia Buds Falling.—To what cause am I to attribute the falling off of my Camellia buds, of which I have much reason to complain.—*A Lady Subscriber.* [The most frequent cause of the Camellia losing its buds is neglect in watering properly. When the buds are swelling, and the soil is allowed to become too dry, the buds will generally drop off afterwards; another cause is a stagnation in the atmosphere of greenhouses through inattention to air giving. These are points demanding your constant attention.—Ed.]

Shrubs for a North Wall.—I have a bare wall, with a direct north aspect, and would be glad to know what shrubs would bloom on it best, and what I should plant to flower in the border at foot of it.—*J. S., Lancaster.* [The aspect is decidedly unfavourable for most things. Try the double-blossomed Cherry, Honeysuckle, the double Bramble, and Irish Ivy as an evergreen will be most suitable for you. For the border, plant the two or three Periwinkles, Lily of the Valley, with Snowdrops, Crocuses, and dwarf Provence Roses.—Ed.]

Seasonable Hints.—Remember that greenhouses and pits be kept dry, one great cause of losing so many plants at this season of the year consists in allowing wet and stagnant damp atmospheres in such places. To exclude frost, all that is frequently necessary is a covering or protecting material over the glass, which, so long as the temperature does not reach the freezing point, is all that is necessary for most plants cultivated in these erections. Fire-heat pre-supposes waterings and frequent admissions of air when the stock would be better, in nine cases out of ten, without it. When good coverings are provided they will be found quite as useful, at least for pits, and much more economical, because, if properly made, more durable, than any other protection. An excellent plan is to form a light framework of rods or straight sticks, the rods fastened by either nails or wires at the corners, and then two or three cross pieces to make them strong; long rushes may then be tied over, placing as much as the hand can grasp at a time and fastening them in close bundles with wire. They are quickly made, and if of the size of a light are put on with facility and dispatch; another recommendation is that the rushes do not touch the glass itself, but leave an interval of about an inch for a stratum of air, which prevents in a considerable degree radiation of heat from the pit; besides this there is no litter and dirt, and they will last with proper care a long time. When coverings are removed in fine weather it is best to do it gradually. As to the use of the watering pot, little of this is required, and when necessary, in open weather, it is the best plan to set out such plants as need it, and allow them to stand until well drained before returning them to the house or pit; thus a great deal of damp is avoided. In houses where fire heat is used some water will be more frequently necessary, but if an evaporating pan be placed on the warmest part of the flue or pipe, not so often as would be the case without it, and will prevent the atmosphere being too dry. A little fire heat when the air is frosty outside the house dries the soil in the pots very much sooner than at other times, and care is necessary in watering plants at such periods. With respect to admitting air to pits, it may be generally done when the temperature outside in the shade is not below 36° ,as shown by a good thermometer, and I am glad to see that gardeners are likely to have good ones at a reasonable price, as nothing can be more useless than many and indeed the majority of the cheap ones now in use. I shall take an opportunity of offering a few hints on the proper method of placing these instruments, and also of a contrivance connected therewith that is very useful if you will be the means of making it generally known. In the mean time I can back your recommendation, and would advise every gardener who wants to have, what he should possess, a good thermometer, to send to Mr. Casella for one. To return, however, if the air be damp or foggy, do not open the lights if by any means you can keep the fog out, if you cannot a little air may be given. When the air is charged with damp, a little fire heat will be necessary in the greenhouse to drive it out, and if the temperature outside be 40° open the lights on all occasions when you can do so.—*J. J. H.*

To exclude Frost from a Cold Pit.—I have been accustomed to exclude frost from my only erection, a cold pit or frame, for three winters, by a very simple and inexpensive piece of apparatus, an account of which may be useful to some one of your readers, who, like myself, cannot avail himself of anything more costly in the way of a heating apparatus. It is simply this, a tin box nine inches square, the top made to lift off and put on like the lid of a canister, air-tight. This is fixed in one of the front corners of the pit; a small pipe enters the bottom of the box, a quarter of an inch in the diameter of its bore, and an inch tin pipe runs from near the top of the box along the front of the pit, going through the end wall where it makes a turn upwards for six inches. The lid is taken off by a stout flange which runs along the sides, and the top is flat, on this a a plate of iron twelve inches square, and about a quarter of an inch thick is laid, which when heated gives off heat enough to keep up the temperature quite sufficient to preserve the plants from injury during a sharp frost, as I have several times experienced. The heating is effected by burning three or four night-lights (such as are sold in boxes, and consist of a wick passing through a thin slice of cork). A small tin vessel is placed inside the box and serves to hold the oil; when lighted it will burn all night without any further attention. As there is no door to the apparatus, it is impossible for any injurious gases to escape inside the pit; the lid fits on tightly and the air which circulates along the pipe enters through the bottom of the box at one end of the pit and passes out at the other, affording additional warmth, while little or no heat is lost. The cost of maintaining it in action is very trifling, and I have been able to preserve my plants beyond my expectations. The weather hitherto has been very mild and the temperature above the mean of the period; when we come to have the sharp weather that we may expect in the course of this month, I shall light my "wicks."—*R. T. W. T.*

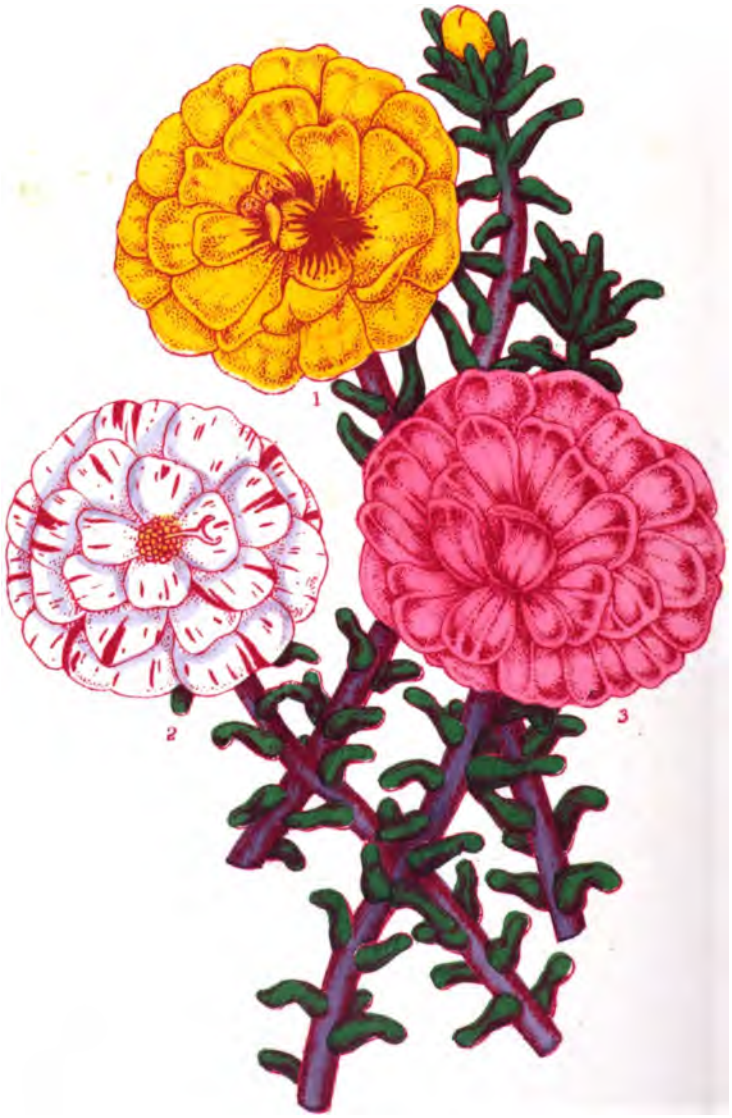
BOTANY OF SINCHUL MOUNTAIN (DORJILING.)—The top of Sinchul is a favourite excursion from Dorjiling, being very easy of access, and the path abounding in rare and beautiful plants, and passing through magnificent forests of oak, magnolia, and rhododendron; while the summit, besides embracing this splendid view of the snowy range over the Dorjiling spur, commands also the plains of India, with the courses of several rivers. In the months of April and May, when the magnolias and rhododendrons are in blossom, the gorgeous vegetation is, in some respects, not to be surpassed by anything in the tropics; but the effect is much marred by the prevailing gloom of the weather. The white flowered magnolia (*M. excelsa*), is the predominant tree at 7000 to 8000 feet; and this year it blossomed so profusely, that the forests on the broad flanks of Sinchul, and other mountains of that elevation, appeared as if sprinkled with snow. The purpled flowered kind again (*M. Campbelli*), hardly occurs below 8000 feet, and forms an immense, but ugly, black-barked, sparingly-branched tree, leafless in winter, and also during the flowering season, when it puts forth from the end of its branches great rose-purple cup-shaped flowers, whose fleshy petals strew the ground. On its branches, and on those of oaks and laurels, *Rhododendron Dalhosiæ* grows as an epiphyte, a slender shrub, bearing from three to six white lemon-scented bells, four-and-a-half inches long and as many broad, at the end of each branch. In the same woods the scarlet rhododendron (*R. arboreum*) is very scarce, and is outvied by the great *R. argenteum* which grows as a tree forty feet high, with magnificent leaves, twelve to fifteen inches long, deep green, wrinkled above and silvery below, while the flowers are as large as those of *R. Dalhousiæ*, and grow more in a cluster. I know nothing of the kind that exceeds in beauty the flowering branch of *R. argenteum* with its wide-spreading foliage, and glorious mass of flowers. Oaks, laurels, maples, birch, chesnut, hydrangea, a species of fig (which is found on the very summit), and three Chinese and Japanese genera, are the principal features of the forest. In spring, immense broad-leaved arums spring up, with green or purple-striped hoods, that end in tail-like threads, eighteen inches long, which lie along the ground; and there are various kinds of beautiful flowering herbs. Nearly thirty ferns may be gathered on this excursion, including many of great beauty and rarity, but the tree-fern does not ascend so high as this place. Grasses are very rare in these woods, excepting the dwarf bamboo; a plant now cultivated in the open air in England.—*Hooker's Himalayan Journals.*

TO PRESERVE WOODEN LABELS.—We know enough of the confusion arising in collections through the loss of labels, when, from want of timely renewal, they decay at bottom. During the past year I set my wits to work to find out a better plan of charring them to render them durable, and, from present experience, I believe I have hit upon a good plan. Before detailing my own way, I will just mention that the plan pursued previously, and which I was taught while in a London nursery, was to dip them in melted lead, this did not answer very well, and was often inconvenient. The way I have hit upon is, to my belief, original, and is as follows:—Having made the labels, before they are painted get a dish or vessel of any size and suitable depth, say four inches deep, which fill with turpentine. In this you may dip the labels, a handful at a time, immersing them as deep as required, and then take them one by one and apply a light to the point, this will char them well superficially, if properly done, and much more neatly than any other plan I have seen. When so charred they appear to be very durable.—*Jaques.*

OXALISES.—These are great favourites with me, I have quite a collection of them, and when in flower they are much admired. Of a few of the most interesting I send cultural remarks, with descriptions, which may perhaps induce some one fond of pretty little plants to grow them. First, I have and would recommend *Oxalis versicolor* as a very free-flowering little thing, whose cultivation is very easy; the way I manage it is this—I take half a dozen roots (or bulbs as they are called) and plant them in one pot, a large forty-eight, in peat soil, and leaf mould, an equal quantity of each, mixed up with a little gritty sand. I insert them rather less than an inch deep, in October, and place them in a dry frame, giving but little water until they begin to grow. By the end of March they produce an abundance of their pretty blossoms, which, when unexpanded, appear striped with crimson on white ground, owing to the undersides of the petals being edged with that colour; when open they are of a beautiful silvery white. The foliage exceedingly neat and interesting in appearance. *Oxalis Bowii*, is a fine species, and indeed better known than *versicolor;* every amateur should grow both. I pot this in the same size as before, but place only three in a pot, and deeper than *versicolor*, say from three to four inches, in good sandy loam, place in the frame, and attend to their management precisely as in the case of the other species. They will flower in May, and make quite "an effect" with their large rose-coloured flowers. *Oxalis speciosa* blooms later, about August; its root should be kept out of pot till early in February. Its colour is red with a light yellow centre—the leaves marked with brown. When turned out the bulbs should be preserved in sand. *Oxalis elegans*, the handsome rosy-purple and dark-eyed blossoms of this plant will recommend it to every one. The treatment of the last applies also to this. *Oxalis esculanta* should be planted eight or nine in a large pot, when it makes a beautiful appearance with its rich golden yellow flowers, and the lively green of its leaves. It will bloom well in the frame early in spring. *Oxalis Piottæ*, of a salmony orange colour is very neat in appearance, and continues long in bloom; sandy peat with a little loam appears most suitable for its growth. Besides the above I have several others, but these are the best. There are about a hundred species in cultivation (by far the most of them natives of the Cape of Good Hope), perhaps some of your numerous readers will favour us with remarks on other varieties in their possession.—*Oxalis.*

A FEARFUL NETTLE.—The great shrubby nettle (*Urtica crenulata*) is common in the Teesta Valley (Sikkim). This plant, called "Mealum-ma," has broad glossy leaves, and though apparently without stings, is held in so great dread, that I had difficulty in getting help to cut it down. The stinging hairs are microscopic, and confined to the young shoots, leaf, and flower-stalks. Leschenault de la Tour describes being stung by this nettle on three fingers of his hand only, at the Calcutta Botanical Gardens, and the subsequent sneezing, followed by symptoms of lock-jaw, and two days' suffering, nor did the effects disappear altogether for nine days. It is a remarkable fact, however, that the plant stings violently only in autumn. I gathered many specimens without allowing any part to touch my skin; still the scentless effluvium was so powerful that I was unwell all the rest of the day. The sting is very virulent, producing inflammation; and to punish a child with "Mealum-ma" is the severest Lepcha threat. Violent fevers and death have been said to ensue from its sting; but this I very much doubt.—*Dr. J. D. Hooker.*

LILIUM PUMILUM.—This forms a very desirable plant, although seldom seen in collections; it is very graceful and delicate, a little stiff, but very pretty on account of its ribbon-like leaves, which are narrow, shining, and deep green. The flowers are delicate, of a turban form, and lively red colour; the bud is agreeably shaded with brilliant purple, and marked with three green lines. Its native country appears to be Tartary; but M. Dietrich. in his "Synopsis Plantarum," thinks it is Peru. M. Kunth, in his revision of the genus Lilium, places *L. pumilum* in the division of Martagon with leaves distant; he describes its flower as fragrant. Perhaps the descriptions generally given of this Lily might bear some modification in regard to what is stated of the corolla being entirely glabrous at the interior. It is certainly not hairy, but there may be seen at the throat some small hair-like points. It is grown in a rich vegetable soil in the open ground. In Daourie it grows in the prairies, and at the bottom of mountains. Daourie is a vast territory in Russia in Asia, at the East of the lake Baikal, inhabited by the Tartars. This region is partly watered by the river Amur, on the banks of which this Lily is frequently met with. The temperature of Daourie is that of the Alps, and vast forests of Pines are common throughout the country. These fact leave little doubt in respect to the hardiness of the Lilium. It may, however, be as well to take the bulbs out of the ground when the leaves are perfectly dry, and preserve them in a dry house during the cold season. They should be planted out in February. The flowers appear in May and June.—*Ann de Gand.*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The Floricultural Cabinet.

FEBRUARY, 1858.

ILLUSTRATIONS.

PORTULACA GRANDIFLORA.

No. I.—Louis Inghelrelst.
II.—Mademoiselle Valentine Leysoz.
III.—Rosea plena.

FLOWERS and floriculture will always be popular— there are so many attractions connected with them that in all ages and among all civilised nations we find a taste for them prevailed.

Of all the attractions presented to the votaries of floriculture however, the ability to produce new varieties and improve upon old ones by the process of hybridising is one of the greatest. The florist takes a humble Violet from its native bank and transfers it to his garden, where, in process of time, under his hands, its progeny is transformed into the beautiful Pansy. Many humble cultivators have given an almost imperishable name to the flower of their choice, which, at the expense of years of attention and pleasant labour, they have succeeded in improving, so much so, that any person unacquainted with botany would scarcely consider them the same flowers. We may instance the Pelargonium, Dahlia, Chrysanthemum, Calceolaria, and Hollyhock. Who is there on reviewing the history of these flowers for the last quarter of a century, who does not perceive what may be justly termed the wonderful transformation that has been effected in these favourites? They however are now old and established florists' flowers, yet the work of improvement still goes on. It is by directing almost exclusive attention to any favourite plant that the greatest success is obtained in this direction, and of those who do this the number is great.

We find others, however, who are continually adding plants to the list of florists' flowers, extensive as it already is; and plants that we can scarcely hope to raise to this dignity receive attentions that almost entitle them to rank as such. Witness the Asters and Balsams of the exhibitions of the present day, and the Portulacas that we now figure. M. Lemoine, of Nancy, has recently devoted his attentions to this flower, and the result has been the production of hybrids of considerable merit.

The three varieties figured were obtained, as we are informed, by crossing *Portulaca grandiflora* with *Thellusonii* and *splendens*. No. 1, named *Louis Inghelrelst*, is a very pretty orange-coloured variety, with a small deep red centre—No. 2, *Mademoiselle Valentine Leyscz*, is white, delicately marked with shades and stripes of pink and carmine—No. 3, *Rosea plena*, more double than the others, is a light rosy-crimson colour, and very showy. These beautiful *Portulacas*, to be seen in their greatest perfection, should be exposed to the full sun, when the brilliant blossoms open on a tuft of their neat, dark, green leaves and coloured stems, producing one of the prettiest effects imaginable. They propagate readily by cuttings, and we understand M. Lemoine has other varieties, recently obtained, even superior to those we figure.

PROGRESS OF THE CARNATION AND PICOTEE, WITH REMARKS ON THEIR MANAGEMENT.

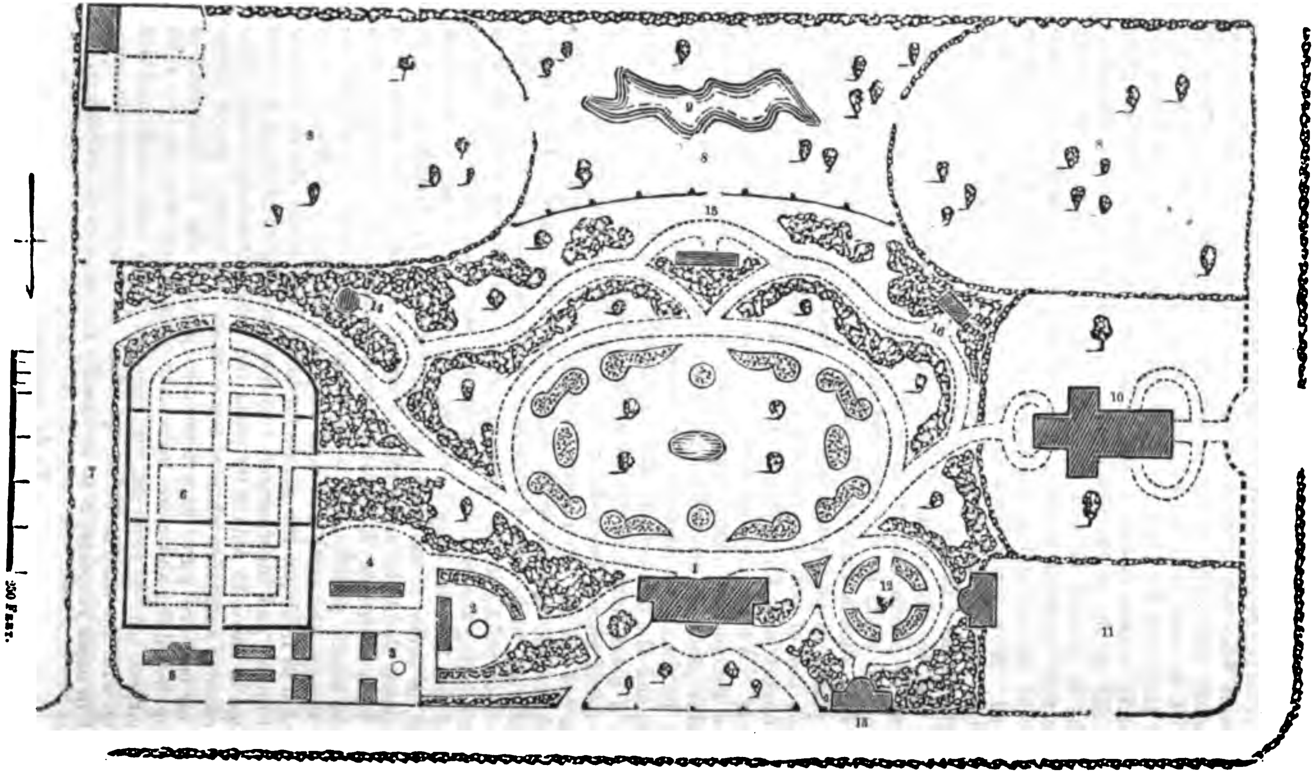
OF all the flowers that adorn the garden, observes Mr. Hogg in his "Treatise"—"whether they charm the eye by their beauty, or regale the sense by their fragrance, the Carnation and Picotee may justly be said to hold the first rank. The stateliness of their growth, the brilliancy and diversity of their colours, and the sweetness of their perfume never fail to attract our regard and admiration. The Tulip, though styled the queen of the garden, cannot boast of more admirers; they may with propriety be considered the master-pieces of nature, and, though rival beauties, may be said to share the sovereignty of the garden between them. Yet it must be admitted, that the Carnation and Picotee continue longer in bloom than the Tulip." To the ardent and devoted florist the splendour of a first-rate bloom of either a Carnation or a Picotee, is indeed scarcely to be surpassed; and among other points of value that recommend these flowers is the fact that, unlike most plants, they may be grown to great perfection even in the vicinity of large and smoky towns, and we owe the origin of many of the best varieties to the garden of the poor florist, situated where the air is so much clogged with dirt and smoke that the attempt to grow flowers there would at first sight appear labour in vain. On taking a retrospective glance at the origin and history of the Carnation, we have it on record that its first introduction was from Italy or Germany. Didymus Mountain, in the "Gardener's Labyrinth," 1571, enumerates Carnations among the flowers grown for "adorning of gardens," and speaks of them as well known to every one. Barnaby Googe, in his translation of Heresbach's work entitled "Foure Bookes of Husbandrie," Lond., 1578, mentions only three sorts of Carnations as then grown; a few years later Gerarde tells us that in his time, 1597, "there are at this day, under the name of *Caryophyllus*, comprehended divers and sundrie sorts of plants, of such variable colours, and also several shapes that a great and large volume would not suffice to write of every one at large in particular; considering how infinite they are, and how every year, every climate and country, bringeth forth new sorts such as have not been heretofore written of; some whereof are called Carnations." He adds also, farther on, "the great Carnation Gilloflower hath a thick woody root, from which rise up many strong-jointed stalks, set with long green leaves by couples: on the top of the stalks do grow very fair flowers of an excellent sweet smell, and pleasant carnation colour, whereof it took his name. The Clove Gilloflower differeth not from the Carnation but in greatness, as well of the flowers as leaves. The flower is exceeding well known, as also the Pinks and other Gilloflowers, wherefore I will not stand long upon the description. These Gilloflowers, especially the Carnations, are kept in pots from the extremity of our cold winters." Then follows a rude woodcut of his "great double Carnation," of which the worthy old "Apothecarie" doubtless had many such growing, as he frequently states, "in my garden in Holborn." In this figure the flower appears nearly semi-double, and with petals having teeth like a coarse circular saw. In the course of a few more years, 1629, Parkinson, in his "Paradisus," calls the Carnation the "queen of delights and of flowers," and describes no less than fifty-two varieties then in cultivation, a proof that they were coming into special favour, and that attempts were even at that time directed to improvement. He then treats at some length on the cultivation of the Carnation, and indeed may be regarded as the first English author who has written on the subject. In chapter eight, he gives as his reason for treating on their culture, "or true manner and order to increase and preserve them"—"because Carnations be the chiefest flowers of account in all our English gardens." He alludes to propagating them by layers, which he says is "of later invention;" and tells us that some curious persons, to preserve the Carnation from earwigs placed them in cups with a rim of water all round, a precaution that shows much ignorance of entomology, as the earwig is well known to possess wings; he gives very sound instructions for growing this flower, and excepting, what is very strange, he makes no mention of soil or compost, his remarks are very judicious. We learn that one

Tuggre, residing in Westminster, was the most famous man at that time for Carnations, Pinks, etc. Evelyn's "Gardener's Kalendar," 1664, has good practical directions also, and shews that their management was tolerably well understood by him. John Rea, a professional gardener, who published in the following year a large work entitled "Flora," has left a catalogue in which he describes 360 "good Carnations," a number scarcely exceeded by more modern ones. To follow the history of the Carnation or Picotee through the eighteenth and present century would be almost superfluous, we have brought it up to the commencement of the period at which its cultivation as a florists' flower may be fixed, when the blooms were begun to be shaped, if we may so speak, after an ideal model, and when florists had their clubs and meetings to which they brought their seedlings, and, for want of magazines and periodicals devoted to floriculture, imparted the results of their experience over a friendly bowl and under the influence of the sedative pipe.

We will now add a few remarks on the management of the Carnation and Picotee, the result of long experience—they are intended for the guidance of such as are "new beginners" rather than for the established grower, and those who have made these flowers their "hobby." In choosing a collection we would advise not to begin with too many at first, but let them be good; and here it would be well to obtain the opinion of some one of experience. On procuring the plants, if in pots, they may be set in their winter quarters at once, that is the frame, provided with a hard floor, dry, and impervious to water; this floor should have a gentle slope from back to front of about three inches, which will be enough to carry off what water may be spilt or fall inside. Unless the floor be hard, moisture will be certain to prevail in winter and spring, and this is the worst enemy the grower has to contend with; unless a firm, hard, and dry material, as cement, asphalte, or concrete, be used, the moisture in the ground will infallibly rise through any other materials, bricks and slates are therefore useless for the purpose. The main object is the exclusion of moisture which otherwise arises from the soil beneath; when, through the floor being of a porous nature, this is the case, it infuses itself among the soil in the pots, and they are soddened with wet; when the frame is shut under such circumstances, it will necessarily be damp. Some persons who do not regard a little trouble and expense, construct a good and substantial drain under the pit, as well as lay down a good floor, and this is a great security. If the sides of the pit be of wood, it ought to be well seasoned and painted; if of brick, cemented. The ordinary dimensions of the pit are from five feet six to six feet from back to front, the back eighteen inches high and the front ten; the length and number of lights of course being governed by the number of plants to be grown. The glazing of the lights must be done in the best manner to ensure success. We have been tempted to dwell thus long on this branch of our subject from the consideration of its great importance, for there are many persons who are content to set their plants on the bare soil, or at most on a stratum of cinder ashes, and who assert that their plants do very well indeed under such circumstances. We admit that they will, for a time, even prosper when thus placed, but some unlucky season is sure to arrive in which mildew will make great inroads on the stock, which will perhaps be so much infected as to be in general beyond recovery. As to ashes, they are a very absorbent material, sucking in as it were all the superfluous moisture of the air, and giving it out again when the frame or pit is closed. However, *verbum sap. sat.*, as the proverb goes, and the "wise" will not fail to profit by the experience offered, inasmuch as the profit will not only extend to pounds, shillings, and pence, but also to the saving of much vexation and annoyance by the failure of plants that are often more valued than the money spent to obtain them in the first instance.

Into such a frame as above described the grower should place his plants in pots purchased in the autumn. If they be rooted layers out of pot, however, they will require potting, which affords an opportunity for saying a few words on the compost for these plants. We are not on the side of those who delight in making up a compost of many ingredients, there has been far too much of this practice; and although there are some growers who may still be found to advocate the benefit attending the use of this, that, and the other, their day has nearly gone by. Maddock, who was a great florist in his time, about fifty years ago, recommends "one-half rotten horse-dung, one year old, or that has been used as a hot-bed for cucumbers, melons, etc.; one-third fresh, sound, loamy earth; and one-sixth coarse sea or river sand. These ingredients are to be mixed together in autumn, laid in a heap, about two feet thick, in an open exposure, and turned three or four times during the winter; or otherwise the dung alone, after being used as a hot-bed, may be thrown together in a heap, in a conical form, in order to rot more perfectly; and, as its surface freezes in winter, it should be pared off, and laid on one side till the whole mass has been thoroughly frozen throughout; this may be repeated as often as the season permits, and it will be completely fit for use the following spring; the earth and sand may be added to it in March, when wanted to fresh pot the plants for bloom: the whole should then be well mixed and incorporated together, and passed through a coarse screen or sieve, to reduce its parts and take out stones, or any other extraneous substance which it may contain. In country places where the air is more pure, experience has pointed out the propriety of using less dung and more loam; the proportions of which, for such situations, may be reversed, viz., one-half loamy earth, and one-third dung, with the sand as before specified: the preparation of the compost in other respects, is to be exactly the same in all situations."

(To be continued.)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DESIGN FOR THE GROUNDS OF A PARSONAGE.

BY T. RUTGER, ESQ.

THE design here given is intended for a small parsonage, the extent comprising rather more than twenty-four acres, and is divided into the house, with its pleasure-garden and shrubbery, the kitchen-garden, stables, etc., three fields of pasture ground on the north, the village church and yard on the west, and a small paddock with a shed at the south-west of the premises, all of which, with what remains, will be found in the reference.

Reference.—1, House; 2, Poultry court with house for fatting, etc.; 3, Stable-yard with stables and coach-house, and dung-yard behind; 4, Laundry-yard, with laundry and brewhouse; 5, Frame-ground and forcing-house, with two sheds; 6, Kitchen-garden; 7, Road to fields; 8, Three fields of pasture ground, with a cow-shed and open shed in the easternmost field; 9, A piece of water; 10, Churchyard, and the village church; 11, Small paddock, with shed at the back of the conservatory; 12, Flower-garden, and small conservatory; 13, Lodge, which can be occupied by the gardener; 14, Alcove; 15, Covered seat; 16, Summer-house.

A FEW REMARKS ON VALLOTA PURPUREA.

BY MR. G. HARDING, LOWER DARWEN.

THIS is a plant of the Amaryllis tribe—pretty, useful, and well deserving both of care and culture; being a great favourite with me, I feel somewhat stirred up to say a word or two in its behalf, for, although it has long been cultivated and well accepted, and though probably much has been said and written in its favour since its introduction, a few words on its management may be of service to some of your readers.

Until the beginning of February my plants are kept on a shelf in a cold house, of about forty or forty-five degrees, in a situation as dry as possible. I then turn them out of their pots, shaking the old soil from them, and repot them in a compost of sandy loam, peat, and leaf-mould, mixed nicely together. In potting I take off all offsets from the parent bulb, and then one and all I place in separate pots according to the size of the bulb, taking care to drain the pots pretty well. After this I remove them to a vinery that is just being started, and there I let them stay, however variable may be the heat of the house, until they come in flower, which, according to the strength of the bulb, will be from

May until the latter end of August. During the time they are growing I water them pretty freely, and as soon as I perceive that one of them has filled its pot with roots, I give it a shift into a larger sized pot without disturbing the roots; from the time they show their scapes until they come into flower I occasionally water them with weak manure-water, which greatly adds to the well-being of the plants. As they come into bloom I remove them to the show-house, where they fail not to add to the attractions of the scene. After they have done blooming I cut off their flower stems, and place them once more in moderate heat to recover their strength and perfect their growth; this is very necessary and must not be neglected, in order for the plants to perfect and consolidate their bulbs. After this I gradually withhold water, harden them off, and again store them away for another season.

When the above simple outline of management is pursued, every bulb of the previous year, both young and old, will flower beautifully—some sending up two or three scapes, bearing on the top of each five or six blossoms, rich in colour, as well as attractions for every lover of fair Flora.

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WINDOW GARDENING AND PLANTS IN FLOWER FOR FEBRUARY.

BY MR. SHEPPARD, BURY.

AT this time of the year, when there are so few plants out of doors to enliven the scene, how refreshing it is to have a display of fresh, healthy, flowering plants for the room window, and how cheering when everything without is wrapt in the fleecy covering of winter, the foreground of the picture, or the frame, if I may use the similitude, is decorated with floral gems, some of nature's most exquisite productions—beautiful "flowers, and buds, and blossoms." When the weather is even of a less decided character, and during the dull days of an English winter, the sky overcast with the "eternal cloud," and the landscape obscured with haze, the proprietor of a few well-occupied flower-pots and bulb-glasses has a miniature garden that affords him one of the purest pleasures, and highest gratifications of a contemplative mind. In the dull town, the aspect of the oft trod street looks brighter and better with such a foreground; a dead wall even may not look so prison-like and so cheerless by the help of a few flowers. The poorest can indulge in this luxury as well as the affluent, for the poor man's Crocuses afford him who takes a pleasure in flowers as much or more gratification than the best Hyacinths of the possessor of more ample means. And then, when the fire burns cheerfully, and the curtains are drawn in the long winter evening, how great a charm is added to the apartment by flowers and fresh green foliage; without, the wind may howl, the rain descend, or the snow fall fast and silently, while ever and anon the pattering of feet on the flags or the muffled tread over the snow beneath the feet of the passer-by, makes the fire seem warmer and our household flowers brighter and more sweet. Let us cherish flowers then, and see what may be done at this season in the way of indoor decoration. We may have an abundance of forced plants if we possess a greenhouse and have the means at command, but these remarks are intended to apply to cases where no such convenience awaits us. Without it we may have a number of pretty plants however, and all of them may be procured for a small outlay at the florists' or at the market. What would the Londoner do without Covent Garden? The process to form *Tree Mignonette* has been so frequently detailed, that everybody who is fond of it (all ladies are) should have it in the window now. *Chinese Primroses* will be in perfection, and covered with a profusion of flowers, they are the gayest of winter plants, not only from their showy appearance when in bloom, but from the great length of time they remain so, from December to the middle or end of the present month. *Heaths* too, are many of them in flower, and may rank with the most free flowers we have, being often so covered with their fairy bells that the leaves are scarcely to be perceived. Among the varieties to be procured or had in blossom now are *Gracilis*, a small deep red, globular flower; *Pyramidalis*, a tubular sort, open at the extremity, and of a delicate pink; *Colorans*, which retains its flowers for a length of time, they are short, tubular-formed white ones, that change to pale rose colour when going; *Regerminans*, white, very small and pretty; besides the foregoing some others may be had towards the end of the month. The worst I know of Heaths is that they will not do well in towns. *Coronilla glauca* thrives well in a room, and frequently continues in flower for three months, without intermission; it is an old and well-known plant, with bright yellow pea-like flowers, and pale leaden green foliage of neat appearance. *Begonias*, some of these are valuable for our purpose, and few plants are so beautiful or striking in flower and foliage if well grown. *Linum trigynum*, a pretty yellow flax, does well indoors as a February flowerer, and keeps up a succession of bloom for several weeks. What looks better than a nice *Daphne* or *Mezereon* in full flower in a pot? This also may be had covered with its delightful pink blossoms, and when done flowering should be set out of doors, plunged to the rim of the pot. The *Cyclamens* are such elegant little plants for the window, so fragrant and delightful, that they are universal favourites with the ladies, and admirably adapted for rooms. Our greatest force, however, lies in the bulbs, and here we shall at least rely on the *Hyacinths*, both in glasses, pots, and moss baskets. *Crocuses*, of varied tints and markings, are among the prettiest flowers to be desired for window decoration, if judiciously disposed as to colours. Here allow me to put in my veto on the use of earthenware hedgehogs and porcupines for these bulbs, they are certainly much out of place for flowers, and the taste that led to the introduction of such "*chimeras dire*" was certainly bad. ***Tulips*** may be flowered very early, according to the time they are planted, and are decidedly showy; no one should omit to supply himself with a good selection. With ***Narcissuses*** I must bring my remarks to a conclusion, but they are, many of them, delightfully fragrant; there is the ***double Roman***, white and yellow—***Grande Monarque***, single white with a yellow cup, and ***Soleil d'Or***, yellow with an orange cup; these three sorts should find a place among window plants, although they are seen much more seldom than they deserve to be, and will thrive well in glasses.

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STYLIDIUMS, THEIR PROPAGATION AND MANAGEMENT.

BY MR. HENRY DYER.

ABOUT thirty species of this elegant genus of little plants, the ***Stylidiums*** or ***Styleworts***, are in cultivation, all natives of Australia or Van Dieman's Land, where they grow abundantly, so much so as to be considered weeds, on open sandy plains, fully exposed to the sun, but where the soil is wet and springy. Although the blossoms are not very showy, they are pretty and interesting dwarf plants, the prevailing colours of the flowers being red and purple, with various shades of pink and yellow—all are exceedingly worth cultivation were it only for the abundance of their blossoms, which in a great measure compensates us for their smallness; these are, for the most part, produced in racemes, but a few are borne in spikes and corymbs. Some kinds are evergreen and half-shrubby, while others are herbaceous.

Stylidiums grow well if properly managed in the greenhouse, and never give much trouble. The half-shrubby varieties are best increased by cuttings, taken from the young tops with their lower leaves dressed off; these will root quickly if struck in silver sand under a bell glass in gentle heat. As soon as well rooted they may be potted off, and kept close for a week or ten days. Spring is the proper time for putting in cuttings of these plants, as they have more time to become well established than if deferred to a later period, and will root quicker. The herbaceous kinds may be propagated either by division of the roots or by seed, which they produce very freely. In division of the root every stem with a little fibre to it may be cut away, and will grow if set in small pots in a warm corner of the house or a pit, covered with a hand-light, and partially shaded for a little time; damp must be guarded against, by raising the hand-light in the day time. Seed may be sown as soon as ripe in sandy peat and loam equal parts, well drained and covered thinly; a gentle heat and moderate sprinklings will make them show themselves, and after they have made a little progress they ought to be placed near the glass, where they may be kept till spring, then potted off and put in the cold frame, where, if repotted in summer, they will make nice plants. They do not require much pot room, indeed, I have found them succeed best when the roots are rather confined. An open, free drainage and plenty of light adds much to their health and beauty. The best soil for them is very sandy peat and leaf mould, or peat, leaf mould, and silver sand in nearly equal proportions. In watering them the leaves ought to remain untouched, and the water given in moderation, too little being as hurtful as too much; in winter, however, they must be kept rather dry. With proper attention as here laid down the interesting family of Styleworts may be kept in health and vigour. The most attractive species are comprised in the following descriptive list:—

Stylidium androsaceum.—Grows about three inches high, flowers white, produced in spikes in May and June; very pretty.

S. Brunonianum.—Height ten to twelve inches, flowers rosy pink, in June; a half-shrubby and very interesting species; the leaves in whorls.

S. ciliatum.—The same height as the preceding, blooming rather earlier; yellow, half-shrubby.

S. Drummondi.—One of the tallest species known, blooming in autumn; flowers pink.

S. fasciculatum.—A singular species, with bundles of shoots from each branch, every one of which bears a small spike of rose-coloured blossoms; flowers in August. Very pretty, and half-shrubby.

S. fruticosum.—Attains from twelve to fifteen inches in height, and bears pink flowers in July. Of rather loose habit, requiring attention to keep it of a neat appearance. Half-shrubby.

S. graminifolium.—Grows about eighteen inches high, and has narrow, grass-like foliage (hence the name). The flowers are very pretty, borne in a terminal raceme, red and purple; the radical leaves disposed like a rosette. Very desirable.

S. mucronifolium.—Grows about ten inches high; flowers in terminal racemes, bright orange.

S. pilosum.—Height one foot; flowers large and white. Pretty.

S. recurvum.—Very dwarf, seldom exceeding three or four inches high, and is another of the most attractive species, not only from its neat habit, but from its flowers being as pretty as those of any other of the genus, of a clear pale red, and very numerous. Blossoms in May.

S. Saxifragoides.—A charming species, growing under a foot high. The radical leaves are disposed in the form of a rosette, very narrow, and tinged with purple at their extremities. The flowers are in racemes, cream-coloured, with a deeper yellow centre, of large size, and blossoming in May and June.

S. scandens.—A small climbing plant, sometimes attaining three feet in height, but generally under. The flowers are large for the genus, and of various shades of pink, rose, and purple. It grows freely with but little attention, and blossoms in June.

GLEANINGS AMONGST THE HARDY PERENNIAL PLANTS.

BY OLIO.

BEING aware that some of the readers of the *Floricultural Cabinet* are much interested about these rather neglected ornaments of the garden, and are wishing to know more of the various kinds of plants which bear our winters uninjured, I am induced to collect from Botanical works, and other sources, some account of these Perennials, and to continue such gleanings in a familiar style, if deemed worthy of insertion; as I partake of the regret felt, that modern gardens, although gorgeous in colour, contain fewer distinct species than were formerly cultivated.

I will commence with *Rudbeckia purpurea*, a native of Carolina and Virginia; its outside petals are long and narrow, and resemble small pieces of red tape; it increases slowly, rarely ripening its seeds in our climate. *Cynoglossum omphalodes* is, as well-known, but now seldom seen, small bright blue flowers, expanding in March and April; it is found wild in Spain, Portugal, and Carniola, delighting in shady situations. At this season of the year how welcome are the white blossoms of the *Helleborus Niger*, or Christmas Rose; the harbinger of spring, found on the Appennines, and other rocky mountains. *Iris pumila*, is of humble growth; its bright purple flowers will soon appear; I have had the blue, and yellow and white varieties, but they are less vigorous than the original plant; its native place is Hungary. *Hepaticas* may soon be expected to open their pink, blue, and white flowers; they are found in the woods and shady mountains of Italy, Germany, and Sweden. *Erica herbacea* exhibits its clustered pink blossoms, tipped with black in March; it may be increased by cuttings, or seeds, and is a native of the Alps and mountainous parts of Germany. *Dodecatheon Meadia*, or American Cowslip, adorns with its elegant, pendent, lilac flowers, the garden in May; its stalks and leaves decaying, render it scarcely visible in the autumn, causing it to be overlooked, and probably injured in trenching; Miller saw it first in the garden of Dr. Compton, Bishop of London, to whom it had been sent from North America in 1709. The Alpine *Primula villosa*, rises a little above the earth; its purple blossoms with yellow eye, greet us in April. To Hungary and Siberia we are indebted for the yellow flowers of *Hemerocallis flava*.

In June may be seen the purple, pink, and white blossoms of *Iris versicolor*, a native of Virginia, Maryland, and Pennsylvania; its stalk is unusually elbowed. *Trillium sessile*, from South Carolina, is still rare; its three white and green variegated leaves, and three upright purple crimson petals, render it a striking object. *Iris Siberica*, is a native of Germany and Siberia, blooming in June; the upper petals are a lovely purple, the exterior ones white, with purple veins, and a rich brown tint near the calyx. How exquisite is the blue of the *Gentiana acaulis*; in its own locality, amongst the mountains, it is very small, having, as its name implies, no stalk. *Iris ochroleuca*, expands its large yellow and white flowers later than most of its tribe, growing in a rich moist soil most vigorously. *Centaurea Glastifolia* is curious, its calyx having glassy-looking scales, with rich brown spots: the corolla formed by irregular yellow thread-like spikes; the leaves have the veins in both sides prominent—it blooms in July, and is found in the East as well as in Siberia. China presents us with *Hemorocallis fulva*, or Tawny Day Lily, and its flowers in July and August are twice the size of the *H. glauca*. At the period of the young leaves emerging from the ground they are of the most delicate green, constituting half its beauty. I find the pretty little pink *Sempervivum arachnoideum*, or Cobweb Sedum, is hardy, braving the cold here, as well as that of its home on the Alps of Switzerland, where also is found the *Epilobium angustissimum;* it greets us in July and August with its lively purple blossoms, and well deserves a place in the border: it is frequently dislodged from its elevated station by the force of mountain torrents, and conveyed into the plains below. The German Alps produce *Centaurea montana*, it opens its bright blue petals abundantly during the greatest part of the summer, and increases most vigorously. The rare *Spigelia Marylandica*, has upright crimson flowers, with white interior, resembling in shape the Trumpet Honeysuckle; it is said to bear our climate; but not ripening seeds, and seldom emitting offsets, is but little known at the present time. Early in the spring, from the Swiss Alps, *Tussilago alpina* sends up its erect stem; the calyx crowned with pale lilac thread-like tissues; its lovely leaves shaped like those of the scarlet Geranium. The Bermudian Islands contribute *Sisyrinchium Iridioides*, its bright six-petalled star-like blossoms, with yellow eye, are produced from May to August, on long stalks, from its lanceolated leaves. *Alyssum Halimifolium* grows spontaneously in dry situations, in the southernmost parts of Europe, where it is shrubby; its abundant white blossoms in spring, make me value it. In the summer appear the yellow spikes of *Lysimachia bulbifera*, received from New York; the little bulbs falling from that part of the leaves which touches the stem, produce young plants in the ensuing spring.

The purple and white varieties of *Tradescantia Virginica* are, during the whole of the summer, seldom without flowers, so constant is their succession. In France and Germany, *Lathyrus tuberosus* affords a pleasing appearance to the traveller, but not so to the husbandman, as its creeping roots render its extirpation difficult; it resembles the Everlasting Pea, but is thought more beautiful, and is of humbler growth. *Campanula Carpatica*, from the Carpathian Alps, in June and July, is much admired for its elegant growth and lovely blue. The crevices of rocks, in the south of France, are decorated by the pink blossoms of *Sedum anacampseros*, or evergreen Orpine, retaining, in sheltered situations, its leaves all the year; they are curiously attached to the flowering stem. *Alyssum deltoideum*, enlivens rock-work with small purple flowers, from April during most of the summer; it is a native of the Levant, as is also *Alyssum utriculatum*, and having expanded in June its yellow petals, forms its curiously inflated pods. *Rubus arcticus* claimed the gratitude of Linnæus, from the benefits derived from it during his Lapland journey; by its nectareous wine he was often recruited; the inhabitants of the north of Sweden also made a syrup and jelly from its berries; these rarely ripen in gardens; the flowers are a bright pink. The well known *Flos vernalis* may shortly be expected to salute us with its rich yellow, it is produced in its wild state on the mountainous pastures of some parts of Germany. How difficult to keep is the lovely *Daphne cneorum*, although said to grow in great abundance on many of the mountains near Vienna, where women gather it to sell in the markets; it blooms during most of the summer, and varies with white flowers; it also grows in Switzerland, as well as Austria, where also is found *Polygala chamæbuxus;* its blossoms have two upright white petals, below them a white tube tipped with yellow, but changing by degrees to a bright bay colour; its leaves resemble those of the Box; with this elegant plant I suspend my researches.

NEW LARGE CHRYSANTHEMUMS FOR 1858.

BY MR. SAMUEL BROOME, TEMPLE GARDENS, LONDON.

ACCORDING to promise made in my last communication, I now forward to you a list of the Chrysanthemums, as follows.—

Aimee Ferriere, beautifully incurved, silver white, with delicate tips of rose, an improvement on Hermione.

Eugenie, lilac and blush, very full; excellent for pots.

Madame Dumage, pure white, very free and double; beautiful for specimens.

Augustine, very large, rosy lilac, remarkably double and very deep; fine for pots.

Madame Leo, ivory white, extraordinary high centre, almost two-thirds of a ball; first-rate.

Admirable, light rose, very free and full, incurved.

Progne, splendid violet carmine, and the finest colour of any Chrysanthemum.

Louis, large Anemone, lilac, very high, centre fine.

Golden Queen of England, gold and canary, precisely the same size and form as Queen of England.

Baron Sealebert, large rosy lilac, very full and free, better than Christine.

Louisa, fine, white as snow, very double and free.

Constantine, bright salmon-red, free and fine.

Pius VII., chesnut-red, incurved; a show flower.

NEW POMPONES.

Polycarp, deep orange, with carmine edges, perfectly double, a very free bloomer, fine.

Crœsus, orange and carmine, very full, a new colour.

Salamon, deep rosy-carmine, very free and full.

Donna Alba, bistre-yellow; fine for specimen plants.

Ida, bright clear yellow, dwarf, fine and free.

Madame Andry, fine rosy-blush, with yellow.

Ascaine, bright gold, free and very good.

Frederick Peel, red crimson, something like Scarlet Gem, very dwarf and very early.

POMPONES—ANEMONE FLOWERED.

Mr. Achille Dutour, pure white, fine.

Pandora, fine chesnut-red, very double.

Antoinette Adam, purple, white, and sulphur.

Madame Molinée, rose and carmine, with lighter centre, dwarf, and good.

Madame Moulets, blush-white, with yellow centre, very free.

Madame Sentir, beautiful pure white, a perfect gem.

Mr. Astic, splendid golden yellow, with a very high centre.

The following errata of the press in my former list should be corrected, instead of "Madame Passy," *read* "Madame Poggie," and "Comte de Rantzeau," placed among the yellows, is a red.

WHAT IS PROPERLY TO BE CONSIDERED A BRITISH PLANT?

BY AMICUS.

(*Continued from page* 6.)

IF it were possible to separate and define with certainty the plants growing spontaneously in this country into the two classes, original and introduced, it might be an interesting labour to do so, or a matter of curiosity; but this we have seen is impossible. As already stated, we are unable to distinguish between genuine native plants and those that have been introduced, and become established, during the hundreds and perhaps thousands of years that have elapsed since our island was first resorted to by the human race. Besides this consideration, there is so little unanimity among botanists on the subject in question, that it is evidently impracticable to adopt any system which would give complete satisfaction. One objects, not unreasonably, to the Sycamores, Poplars, and Limes being catalogued as British trees, and asks on what principle the Laburnum, Chesnut, and Larch are excluded? And again, are half of the reputed British Willows believed by our best informed botanists to be indigenous? Is it not very possible, that if all vegetation in the British Isles were to revert to the state in which it certainly existed before man commenced clearing the ancient forests, that our trees, now so numerous, would be reduced to a few species only?

We may assume, with a more certain show of probability, that our forest trees are, for the most part, introductions, with the excep- of the Oak, Beech, Hornbeam, and Birch in England, and the Fir in Scotland. Some coppice wood, as a few Willows, Ash, and Hazel may also be natural; for the rest there can be little doubt, if left to themselves, without the care of man, they would in the course of time perish, while some of hardier character would occupy their place. At present they exist and propagate themselves on land that is kept purposely clear.

However desirable some may consider it to know the antecedents of any plant for which a place is claimed in the flora of any country, it is more important to observe and record the period of its first appearance, with its habit in a given locality, its prevalence and increase or decrease since it was first observed. If only such plants were retained in the flora of our country, of which the native origin can be satisfactorily proved, our list, comparatively a small one, would become very meagre indeed.

It is very probable that some discoverers of foreign or rare plants have misapplied the term *indigenous*, by using it instead of *spontaneous*; to decide whether certain plants be indigenous or not would require an amount of botanical knowledge rarely possessed by those who are the most successful and persevering collectors of plants, and investigators of local botany; but none are incompetent to decide whether a plant be spontaneous or not. With little trouble, evidence may be obtained that would satisfy any one that the plant in question is of spontaneous growth; but what proof can be given in nineteen cases out of twenty that a plant is indigenous. For these reasons I think it will be apparent that the use of the term *spontaneous* would be far preferable, as it is one in which the observer could never, or but seldom be mistaken.

REVIEW.

The Ranunculus, How to Grow It, or Practical Instructions in the Cultivation of this favourite Florists' Flower. By CAREY TYSO, Wallingford, Berks. 16mo., pp. 32. Price 6*d.*

MR. TYSO'S name is so intimately associated with the Ranunculus that anything we can say in commendation of a small treatise like the present, concise yet eminently practical as it is, and, as the title-page affirms, "the result of many years experience"—is almost superfluous. We are glad to find there has been a call on the part of the public for another edition, and take it as a proof that the cultivation of this beautiful flower is spreading to a much greater extent than heretofore. The "*Ranunculus, and How to Grow It,*" possesses the additional merit of being wholly original, and contains sound advice from the pen of a gentleman who, as the raiser of most of the fine varieties in cultivation and an extensive grower, is best entitled to write on the subject. Although we have been frequently favoured with communications on the Ranunculus by the author of this little *brochure*, we are, nevertheless, tempted to give our readers a few extracts from his pamphlet.

As to planting, Mr. Tyso observes—

> "The best season for general planting is the last fortnight in February—the plants have not then to contend with the severities of the winter. In some favourable seasons roots may be planted with advantage in October; they will have more time to vegetate, and establish themselves; will make stronger plants, and will bloom more vigorously, and about a fortnight earlier than if planted in spring. Considerable hazard, however, attends autumn planting, and it is not recommended, except by way of experiment; to those who possess a large stock and can afford to risk a portion.
>
> "In fine weather, towards the close of February, rake your beds perfectly level, and divide them into six longitudinal rows for mixed roots, allowing four inches from the outside row to the edge; or for named sorts, mark your rows transversely, at distances of five inches asunder, and plant six roots in a transverse row.
>
> "Draw drills with a small hoe one inch and a half deep, and plant the roots with the claws downwards, with pressure to secure them firmly in the soil, so as to be one inch and a half from the crowns to the surface.
>
> "In order to secure a firm site for the tubers, some growers do not draw drills, but after raking the soil loosely, press the tubers with the thumb and finger to the required depth, and rake on them the surrounding soil. This can be done only in favourable weather, and when the soil is light and friable, and with attention not to break the claws of the tubers.
>
> "When planting on a small scale, a dibble with a shoulder at the precise depth may be used, but in large quantities it is an inconvenient method; and planting at the bottom of a drill with moderate pressure, and without disturbing the subsoil, is attended with similar advantages to the use of a dibble, and in practice will be found to have some points of preference. If the top soil is light after planting, it may be gently beaten with the back of the spade, this operation however must be only done in dry weather, and may be repeated just before the plants come up."

Their subsequent treatment is given as follows:—

> "The plants will make their appearance in a month or five weeks; after which it will be advantageous to press the soil closely around them with the hands, stopping up the holes made by worms, frost, and the protrusion of the leaves through the surface. A slight treading between the rows will give a compact surface, and make room for the top dressing. This should consist of rich compost, chiefly of decomposed manure (free from wireworms), it should be added first as a protection from cold, drying winds, and subsequently as a source of nourishment to the roots, carried down by the agency of rain. Night soil that has been exposed and pulverized may be used in the top dressing, but it must be used with caution as it is a powerful stimulant.
>
> "The uncertainty of our climate, and our liability to the recurrence of frost in April and even in May, is undoubtedly an obstacle to the easy and certain success in the culture of this flower; but then the same observations apply with equal force to the Tulip, and other floral gems of the open garden. It is proper then, as far as possible, to guard against this evil, by having a quantity of flake hurdles at hand to cover at least the best beds. Short stakes should be driven in the ground to support the hurdles just above the foliage. Other means of shelter may be useful, but as the object is the security of a *nearly hardy* plant, a close protection would be injurious, as it would weaken and draw both foliage and blooms, and thus render the plants more subject to injuries from being delicately brought up. Should the grower, from any circumstance, have neglected to

cover his beds, the first step to take on rising in the morning on which the frost occurs, is to put on the hurdles, and then cloths or mats, and not remove the covers until the plants and ground are thawed; after which the light should be admitted gradually, by propping up the hurdles on the north side, and the direct sunshine excluded some time after all remains of frost have disappeared.

"If large worms exist in the beds, they should be collected by hand at night, or destroyed by lime-water, used in a clear state. The ascent and descent of worms is injurious to all choice plants, and especially to the Ranunculus, which, from its shallowness in the soil, is the more exposed to harm from such disturbances.

"Genial showers in April and May are essential to a vigorous and healthy growth. The Ranunculus delights in a *moist* soil, and if there be a deficiency of rain in May, water must be plentifully supplied, just at the time the flower buds are appearing. This is a critical period, and for lack of moisture many plants fail to bloom, and send up only an abortive flower stem. Water from a pond or brook is better than from a well; if such cannot be obtained, fill a large vessel with water from a pump and expose it to the sun and air before use. It should be applied (morning or evening, according to the state of the temperature), between the rows, from a tube-pot, and not over the foliage, except in cloudy and showery weather. It may appear an anomalous direction to water in wet weather, but advantage should be taken of a shower falling, to give a generous overhead watering, as the plants are then naturally in a better state to receive moisture than in dry weather, when their pores are contracted. As a general observation, it is better to water copiously three times a week, than to administer a small quantity every morning and evening.

"To obtain fine blooms for exhibition a little weak manure-water may be occasionally given. I have tried numerous natural and artificial Guanos, etc., in some instances without perceptible benefit, and in others with positive injury. The most simple and useful agent is superphosphate of lime, reduced to fine powder and stirred in the water, or a small quantity of sheep dung used in the same way. I am aware that many connoiseurs have been at first delighted with the luxuriant foliage of their plants traceable to potent doses of liquid manures of varied name, but the apparent benefit has in almost all instances been realized at the future risk of the health of the tubers. I am not adverse to novelties, because they are such, but to the experimentalist would speak the language of caution. Try your hand on a small scale only, never apply a new nostrum on a larger portion of stock than you can afford to lose."

Those who grow for exhibition will find the remarks on shading very judicious; they cannot be too strictly attended to.

"To obtain perfect blooms, a shade of hurdles, netting, or white calico, or tiffany should be used, when the blooms begin to expand. It should be so placed as to admit of abundance of air, be secured from disturbance by winds, and be removed in cloudy weather, and at night. This will not only prolong the period of flowering, but increase the size of the blooms. The varieties having light grounds will sustain the rays of the sun much better than those with dark grounds. Even gentle growing showers in the early stage of flowering are admissible with great advantage to the plants, and without damage to the blossoms of the light kinds; but the dark-coloured sorts are extremely susceptible of injury from sun and rain. This fact renders it expedient for the cultivator for exhibitions to plant a separate bed of the dark selfs, which will enable him to make a more perfect provision against the evils here referred to; the covering used for this bed could not always, with safety, be removed at night. Many sorts will produce more flower buds than should be permitted to mature, the lateral buds should, therefore, be pinched off when young, leaving two or three leaders to each root."

Every florist should read the treatise himself (it is to be had for sixpence), and we feel assured he will find himself repaid by its perusal.

NOTES ON NEW AND SELECT PLANTS.

SONERILA SPECIOSA. Nat. Ord. *Melastomaceæ*. This is by far the most beautiful *Sonerila* we have seen, at least as far as the flowers are concerned. Their colour is a bright, rich purple crimson, ornamented with golden-yellow anthers, and measuring nearly an inch and a half across. The stems attain about a foot high, moderately branched, and towards the extremities are red or crimson coloured. The foliage is heart-shaped, finely serrated at the edges, and of a lively, glossy green. Its introduction is due to Messrs. Veitch, who obtained it from the Neilgherry Hills, in India, along with *S. elegans*, recently noticed by us. (*Bot. Mag.*,5026.)

11. CORDIA IPOMŒÆFLORA. Nat. Ord. *Boragineæ.*—A stove shrub, or small tree, whence originated is uncertain, but an old specimen flowered very freely in the Kew establishment during the past summer. Its blossoms, borne in loose panicles, are white, and, at a little distance, have the appearance of those of a *Convolvulus*, and measure about an inch and a half across. The leaves are much confined to the branchlets, borne on foot-stalks, two or three inches long, and measure a foot and upwards in length by five inches across the broadest part; the margins are coarsely toothed. The specimen at Kew is twelve feet high, we cannot doubt, therefore, that in its native country it attains a much larger size. (*Bot. Mag.*, 5027.)

12. GRAMMATOCARPUS VOLUBILIS. Nat. Ord. *Loasaceæ.*—At first sight one would be apt to take this plant for a *Loasa*, to which it is nearly allied; its blossoms are pure yellow, rather small, not exceeding an inch in diameter. The stems are long and slender, climbing, and rough with minute stinging hairs, as are also the leaves. A native of Chili. (*Bot. Mag.*, 5028.)

13. ANANAS BRACTEATUS. Nat. Ord. *Bromeliaceæ.*—A singularly ornamental Pine-apple, from Brazil. Its bracts are the chief attraction, which are of a brilliant crimson hue when the plant is in flower, fading off to brownish-red and purple when in fruit, The latter is stated, on the authority of Dr. Lindley, to be "so good that no collection of pines should be without the species." It appears doubtful, however, whether it should be considered anything more than a curious variety of the common Pine-apple, *Ananas sativus*. (*Bot. Mag.*, 5025.)

14. COSMANTHUS GRANDIFLORUS. Nat. Ord. *Hydrophylleæ.*—From California, by Messrs. Veitch's collector, Mr. Wm. Lobb, where it was first detected by the late unfortunate Douglas during his wanderings in that region, about 1834. Its blossoms have considerable resemblance to those of an *Eutoca*, but are larger than any of that genus, or indeed than any other member of the order to which it belongs. Their colour is a light lilac purple, very pale on the outside, and their diameter almost a couple of inches. The plant

is somewhat decumbent, but free, and a strong grower in California, reaching from three to five feet high. Like the Eutocas, our species is covered with short, viscid hairs. The leaves are large and coarse. (*Bot. Mag.*, 5029.)

15. Fritillaria Kamtschatcensis. Nat. Ord. *Liliaceæ.* (Syn. *Lilium Kamtschatcensis.*) This plant is the "Black Lily" of Dr. Von Siebald, and appears in reality to belong to the *Fritillarias;* it is, however, a very attractive little flower, and although far from black, the blossoms are of a deep chocolate tint, about an inch and a half each way. It is found over a large portion of that territory known as North West America, in the islands occupying the space between that continent and Asia, as well as in Kamtschatka. For borders, it will be found an interesting, though not, strictly speaking, an ornamental plant. (*Flor. des Serres.*, 1232.)

16. Echeveria Quitensis. Nat. Ord. *Crassulaceæ.*—A shrubby, greenhouse succulent, although it will do for rock-work decoration in summer, where it is conspicuous by its bright scarlet flowers, and singularly stiff foliage. It blooms in August; the flowers are borne in close, erect racemes, and the plant attains about half a foot high. It is easily increased by cuttings and seeds, which latter are produced in considerable abundance. We know nothing of its origin farther than that the Horticultural Society received it from Isaac Anderson, Esq., of Edinburgh.

17. Lonicera angustifolium. Nat. Ord. *Caprifoliaceæ.*—Where a choice collection of hardy shrubs is grown, this Honeysuckle should have a place, for although of no great beauty, it is a very interesting species, of slender habit, with small yellow flowers, borne in pairs at the end of small, drooping peduncles, in April and May. It grows from four to five feet high, in good garden soil, and increases readily from cuttings. It was raised from seeds received from Captain William Munro, from the northern districts of India.

QUESTIONS, ANSWERS, AND REMARKS.

Herbaceous Pæonies.—Having a good collection of these splendid but old-fashioned flowers, I have thought of sending you a note of them, and shall be glad to know whether any of your readers have others, as I fancy I have almost an unique collection. In spring they make a show that is almost unrivalled by other flowers, not even excepting the Dahlias and Chrysanthemums of autumn. The first to bloom is *P. tenuifolia*, with its beautiful crimson flowers and finely cut leaves; *P. tenuifolia fulgida* much resembles it, but the colour of its blossoms is more brilliant. I have several hybrid, single purple-flowered kinds, with slight variations in colour, which succeed the above, namely, *pubescens*, *decora*, *compacta*, *royal purple*, *splendens*, and *foliosa.* Then come *P. paradoxa fimbriata*, and the following—the latter is a very pretty and distinct plant, of dwarf habit and very double; *P. lobata*, also distinct, light carmine red; *P. officionalis rosea*, large double rose, fading to blush; *P. officionalis albicans*, the double blush, very fine; *P. officionalis rubra*, the old and well known double red variety, as fine a flower when well grown as the garden affords; *P. officionalis anemoniflora* is a variety lately received from France, it is an interesting flower, the stamens like narrow petals edged with gold. The earliest blooming of the more modern Chinese Pæonies, *P. albiflora*, come into flower immediately after the preceding, and in all shades of crimson and blush to almost yellow. *P. albiflora vestalis* is pure white, but single; *P. albiflora tartarica*, single rose; *P albiflora Whitlei*, double white, very large and fine; *P. albiflora Reevesiana*, large double rose or blush pink; *P. albiflora Pottsii*, a very splendid and showy plant, the blossoms rich crimson, very large; *P. albiflora Humei*, large rose; *P. albiflora*, variety *grandiflora carnea pleno*, one of the largest I ever saw, fine, delicate salmon blush; *P. albiflora elegans*, pale flesh colour, the inner petals salmon, with a touch of carmine; *P. albiflora lutea plenissimo*, pale straw yellow, inner petals of a buff tint when in full flower. I have also a plant of *P. Whitmanniana*, which I received under the designation of a yellow flower, but with me it is a dirty greenish yellow, and much inferior to what I had been led to expect. The Chinese Pæonies require a light rich soil, good sandy loam suits them well, and they are readily propagated by dividing the roots in April when the young shoots are a finger long.—*A Country Clergyman.*

Brief Advice on Auriculas.—In forming the compost avoid all nostrums, so much recommended by many growers of the old school, and even some of the new. Make it rich by vegetable mould, or cow-dung, porous by means of peat earth, and strong by means of good loam. Never pot a plant without removing every symptom of decay; the smallest bit will increase and destroy the plant in time. Always keep the collar of the plant even with the surface of the soil. Water seldom in the winter time and never until they want it. Frequently examine the drainage, and see that the water exudes freely. A stoppage is soon fatal. Remove leaves as soon as they begin to turn yellow. In open weather let them have all the air you can give them; but not in damp weather or east winds. Never fail to top-dress them in February with well-decomposed cow-dung and a little sand, or if you have poultry-dung rotted into mould, one-fourth, with the same of loam, sand, and cow-dung. From plants intended to bloom strong, remove side shoots as soon as they are large enough to take off and strike. When they show the colour of their bloom, remove them to shelter and shade to open, and then adjust the pipe to form a neat truss. As soon as the bloom declines, put them on a dry, hard bottom, to receive all the weather but the mid-day sun until July; then protect them from heavy falls of wet. In August turn them out of their pots, examine their roots, remove all canker and repot them in new soil. They must then for a time be covered up in their frames. This is the pith and marrow of the best treatment for these beautiful florists' flowers.—*G. Glenny.*

Natural Hygrometers.—The common Chickweed is an excellent Hygrometer. When the flower expands fully, we are not to expect rain for several hours; should it continue in that state, no rain will disturb the summer's day. When it half conceals its miniature flower, the day is generally showery; but if it entirely shuts up, or veils the white flower with its green mantle, let the traveller put on his great coat. The different species of trefoil always contract their leaves at the approach of a storm; so certainly does this take place that these plants have acquired the name of the "poor man's barometer," or rather "hygrometer." There are several of the compound yellow flowers that close before rain, and a species of wood sorrel which doubles its leaves before storms and tempests.

Chimonanthus fragrans.—The prettiest shrub we have at this time is *Chimonanthus fragrans*, planted at the foot of a south-west wall; it has never been pruned or trained, but is allowed to take its own course. It now measures ten feet high, fifteen wide, and ten through. There are now thousands of expanded blossoms on it, and should the weather continue mild, thousands more will open; every part from top to bottom is loaded with its beautiful blossoms, and their delicious perfume is perceived a long distance off.—*G. Archer, Findon Hall.*

Mildness of the Winter.—We have received from a number of correspondents proofs too numerous to particularise of the unwonted mildness of the winter. One correspondent writes to tell us that he has gathered Raspberries in his garden in Kent, on the twentieth of December—another, that as far north as Durham, Primroses and other early native flowers were to be seen in blossom on Christmas day.

Mr. S. W. Smith, of Northampton, sends us a box of pears gathered on Christmas day, being the second crop from the same tree—the result of an effort of nature to produce and mature the fruit from a bunch of blossoms put forth in August last. They are each a malformation, and very curious in a morphological point of view. We are informed that they were gathered at Stonley, near Leamington, the tree growing in a sheltered corner, with a south aspect. The same gentleman gathered, on the occasion, a bunch of wild flowers from the hedgerows, and found a bird's nest with the old bird sitting.

OBITUARY NOTICES.—We have to regret the loss which the Horticultural Society and Botany have in common sustained by the death of Dr. Royle, who expired suddenly at his residence at Acton, on Saturday, January 2nd, 1858. His labours in the attempt to develope the vegetable riches of India are too well known to be repeated, while his botanical knowledge was such as ranked him with the ablest botanists of the day. As Secretary of the Horticultural Society he won much respect from all who had occasion to be brought in contact with him in his official capacity. His work on the Botany of the Himalayan Mountains, is justly described as "a model of research, and that too in a branch of natural history little pursued at the time of its appearance."

Since the above was in type, we have received the mournful intelligence of the loss sustained by the Society and the gardening public in general, by the death of His Grace the Duke of Devonshire, President of the Horticultural Society, one of the most munificent patrons of the arts and sciences, and more especially of Botany and Horticulture. His Grace died suddenly, at his seat, Hardwick Hall, January 18th, aged sixty-eight.

THE CYPRESS OF SOMMA.—This tree is the oldest of which there remain any records. It is supposed to have been planted in the year of the birth of Christ, and on that account is looked on with reverence by the inhabitants; but an ancient chronicle at Milan is said to prove that it was a tree in the time of Julius Cæsar, B.C. 42. It is a hundred and twenty-three feet high, and twenty feet in circumference at one foot from the ground. Napoleon, when laying down the plan for his great road over the Simplon, diverged from a straight line to avoid injuring this tree.—*Notes for Naturalists.*

A MEXICAN GARDEN.—"At Tepec my friends have a beautiful garden that extends down to the river, from which it is separated by a low wall. This I shall describe somewhat at length, as I wish to show to what perfection a garden can be brought even in Mexico, when owned and managed by Englishmen. I do not believe that there is one equal to it in all the republic. The grounds are, perhaps, four acres in extent, and full of all the fruits, vegetables, and flowers that can be obtained. One main walk runs from the gate to the river-wall, and is lined with bananas on both sides; and under them is a hedge of coffee bushes, with their beautiful white flowers. The coffee grown in this garden is in constant use, and much approved. On the left of the central walk is a branch avenue of orange-trees, almost always covered with flowers, and green and ripe fruit. These oranges are delicious—some of the best I ever met with. Seats are disposed along this avenue, which is the pleasantest lounge in the neighbourhood. The trees are so thick that no sun can penetrate, and they are always filled with an infinity of birds. A walk extends along the river-wall, and also goes round the garden, and is lined by some noble trees. One path is edged by pomegranates, which are most beautiful when in full flower. European vegetables here flourish well, with the exception of potatoes, and we always had a capital supply from this garden. Peas are never out of season, and appear on the table every day in the year. Vines do not thrive, nor do peaches ever come to much; still both are in the garden, and they do the best they can with them. Strawberries were being planted just before I left, and I hope ere this they have produced a good crop. Apples, citrons, melons, pines, and other fruits all do well. In one corner of the garden were some magnificent aloes, one of which was on the point of flowering when I left. Its stem had shot up to the height of some forty feet, and was nearly as thick as my body. I counted thirty-nine branches from which flowers were to be produced, and several blossoms would appear on each branch. One part of the garden, perhaps a quarter of an acre, was planted with Guinea grass, and formed a playground for some enormous tortoises, which are natives of San Blas and its neighbourhood. There were six of these fellows, of all sizes—the largest as big as the one I have seen in the Zoological gardens, and able to walk, with great ease, carrying at once myself (10st. 11lbs.) and a 12-stone man on his back. They lived entirely on the Guinea grass, and appeared very happy and contented. A stream of water supplying the garden ran through their playground, and a large hole was scooped out for them, in the mud of which they half buried themselves the entire day. When the big one was wanted for inspection, it took all the gardeners in the place, with crowbars, to rouse him out."—*A Trip to Mexico.*

Shrubs for a North Wall.—The common Laurel forms a handsome covering to train on blank walls with cold aspects in this neighbourhood, and Virginian Creepers look particularly well intermixed with them. The old-fashioned Maiden's Blush Rose blows and does well as a creeper under the same circumstances. The Laurustinus is never more beautiful than when thus trained, but whether it will flourish with a direct north aspect I am not sure. Were I in the place of your correspondent, *J. S.*, *Lancaster*, I should put in one or two plants of this, and the common white Jasmine, as an experiment. Can any of your Subscribers tell me whether there are any climbers besides the Ivies that will attach themselves to a smooth plastered wall without being nailed up, also what is their experience with soot-water as a liquid manure, for delicate shrubs in the open ground?—*Commelina, Totnes.*

Liquid Manure for Auriculas.—During last year I made a trial of a liquid manure, recommended, I believe, by Mr. Neville, and I think with considerable advantage to the plants. It consisted of an ounce of Nitrate of Soda (common saltpetre), in a gallon of soft water. I commenced watering with it in the beginning of April and continued to apply it till the end of the blooming season. I shall be glad to know if any Subscriber to the *Cabinet* has tried it, and with what success.—*A Young Florist.*

A Waterproofing Composition.—The following may be useful and is, I believe, not generally known. Take three pints of linseed oil well boiled and mix in it one ounce of soft soap. This may be brushed-over calico when stretched on a frame. It will resist moisture for a length of time, and is very durable. Pits covered thus admit plenty of light, although I think the tint of it is not good for growing plants, being rather yellow. It is useful in many ways, however, has little smell that is disagreeable, and is, besides, cheap.—*D. K.*

The Primrose in Australia.—Waking up to conscious existence in the midst of a garden, it would seem as if man had not entirely forgotten the wonderful vision on which his eyes then opened. At least there is no passion more general than the admiration of beautiful flowers. They kindle the rapture of infancy, and it is touching to see how over the king-cups or daisies its tiny hand closes more eagerly than hereafter it will grasp silver coins or golden. The solitary blossom lights a lamp of quiet gladness in the poor man's chamber; and in the palace of the prince the marble of Canova and the canvas of Raffaelle are dimmed by the lordly exotic with its calyx of flame or its petals of snow. With these companions of our departed innocence, we plait the bridal wreath; and scattered on the coffin or planted on the grave, there seems a hope of resurrection in their smile, a sympathy in their gentle decay. And whilst to the dullest gaze they speak a lively oracle, in their empyrean bloom and unearthly fragrance, the pensive fancy recognises some mysterious memory and asks,—

> "Have we been all at fault? Are we the sons
> Of pilgrim sires who left their lovelier land?
> And do we call inhospitable climes
> By names they brought from home?"

Memory is defined to be the power or capacity of having what was once present to the senses or the understanding suggested again to the mind, accompanied by a distinct consciousness of past existence.

The term is also employed, though more rarely, to denote the act or operation of remembering, or the peculiar state of the mind when it exercises this faculty, in contradistinction to the faculty itself.

We are informed that various opinions have been propounded by metaphysicians respecting the nature and origin of the faculty of memory. Dr. Reid, who has examined this question with great acuteness, has satisfactorily demonstrated the theory of the ancients to be very defective. The more modern theories of Locke, Hume, and other philosophers, also meet with little consideration from the same acute metaphysician, who, after exposing their fallacies, sums up in these words,—"Thus when philosophers have piled one supposition on another, as the giants piled the mountains, in order to scale the heavens, it is all to no purpose, memory remains unaccountable, and we know as little how we remember things past, as how we are conscious of the present."

Though memory remains unaccountable, there are few individuals that want their remembrancers—kings, judges, and gardeners have them, and many of your readers will have their floral favourites, the sight of which will recall to mind days and scenes that have long since passed away. Many years ago, in the "*Gardener's Chronicle*," we were told, when care is taken to use a white bottle with a piece of damp sponge and a little earth in it, and to place it in all the bright light of the sun, plants may be carried alive in safety half round the world. It was in this way that the Primrose is said to have been first conveyed to New Holland, by a lady, and as it so happened that it was beginning to bloom when it arrived, the interest excited by the event was quite extraordinary. Such crowds, indeed, are said to have welcomed its landing, in their eagerness to catch a glimpse of the well-remembered stranger that a guard was placed over it to protect it from injury. A little poem upon this incident has been published in "*Ainsworth's Magazine*," a few of its beautiful verses may please some of the *Cabinet's* readers.

"That precious thing (oh, wondrous!
Oh, spell of potent power!)
From English earth transplanted,
A little lowly flower.

"Be blessings on that lady,
Be blessings on that hand,
The first to plant the Primrose
Upon the exile's land.

"The sound had gone before her,
No eye had closed that night,
So yearned they for the morrow,
So longed they for the light.

"She smiles while tears are dropping,
She holds the treasure high,
And land and sea resounding
Ring out with one wild cry.

"The mother holds her child up,
'Look, little one,' cries she,
'I pull'd such when as blithsome
And as innocent as thee.'

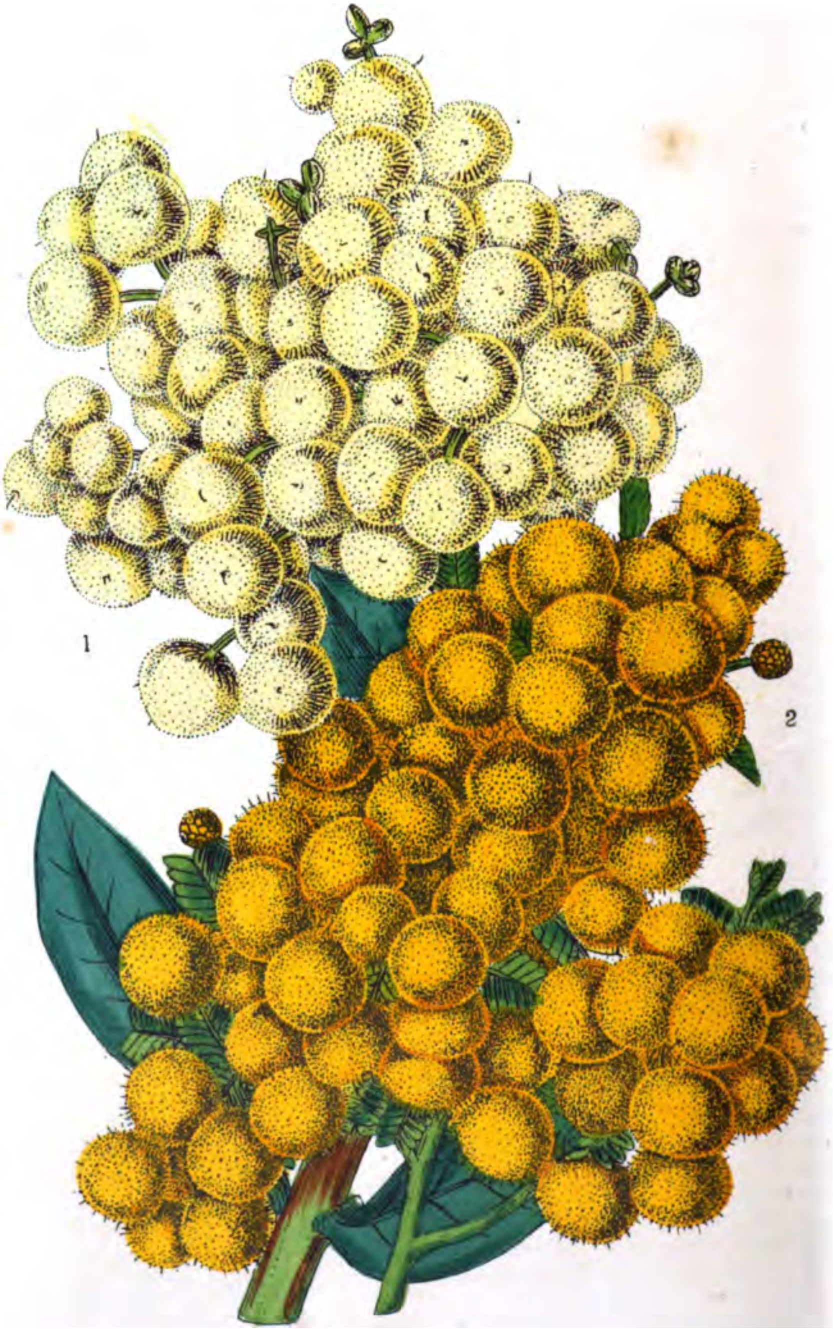
"No word the old man utters,
His earnest eyes grow dim;
One spot beyond the salt sea,
Is present now with him.

"There blooms the earliest Primrose,
His father's grave hard by;
There lieth all his kindred,
There he shall never lie."

West Plean. PETER MACKENZIE.

A FEW GOOD FUCHSIAS.—King Charming, scarlet, well reflexed, purple corolla, a pretty little flower. England's Glory, fine white, with a scarlet corolla. The Little Treasurer, tube and sepals bright scarlet, large open violet corolla. Duchess of Lancaster, white, well-reflexed rosy-violet corolla. Glory, crimson, well reflexed violet corollo. Lady Franklin, white, purple crimson corolla. Duke of Wellington, free flowering, rosy crimson, reflexed. Omega, bright lilac corolla, crimson tube and sepals. Prince Albert, crimson sepals, violet corolla, well-reflexed. Little Bo-Peep, large, scarlet tube and sepals, corolla globose, violet. Admiral Boxer, scarlet tube and sepals, well reflexed. Mrs. Story, scarlet sepals well reflexed, clear white corolla. Prince of Wales, crimson reflexed sepals, violet corolla. Etôile du Nord, scarlet tube and sepals, with a deep maroon corolla. Clio, white, with a ruby scarlet corolla, large and free bloomer. Queen Victoria, crimson sepals, with white corolla.

MISTLETOE has been unusually abundant this season. In Berkshire some of the orchard apples are covered with it, as are the hawthorns, and if possible more so. Considerable quantities also grow on limes, maples, acacias, and black poplars; on the oaks it is found but sparingly.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The Floricultural Cabinet.

MARCH, 1858.

ILLUSTRATIONS.

No. I.—ACACIA CELASTRIFOLIA.

II.—ACACIA HISPIDISSIMA.

THIS very ornamental genus is well known to all lovers of plants, and, with few exceptions, all the species will do well in a cool greenhouse. The prevailing colour of their blossoms is yellow, and of this there are numerous shades, from very pale sulphur to deep orange. The flowers are variously produced in different species, some being in large bunches or masses, more or less dense, others borne along the branches like spikes, and, again, others more scattered. Of more than two hundred and fifty in our collections, the majority are well suited for pot culture. Some strong-growing kinds however, may be grown in the border of a conservatory or in large tubs and boxes; and nearly all of them are natives of Australia, where they are a prevailing feature in the landscape, the "scrub" of that country consisting in great part of these plants, growing so closely, and so completely matted together, as to offer an effectual obstacle to any further progress. "Hills and vales alike were covered with flowers, principally of a yellow colour, and growing as thick as they could, presenting to the eye an unusual and beautiful appearance. Everywhere the *Acacia*, the loveliest of the flowering shrubs or trees of Australia, and destined to be as much celebrated in the future lays of her future poets as the hawthorn has been in those of the British bards, scented the air and dazzled the eye with its rich yellow blossoms." Thus writes one of the many travellers who have penetrated towards the interior of that famed country.

Acacias may be readily propagated from seed, and most of them seed freely with us. Before being sown it should be steeped in water, at a temperature of about one hundred and twenty degrees, for a day previously, which will much assist their germination, and then be sown in fine sandy loam. Cuttings, made of the half-ripened young shoots, inserted in sand under a bell-glass, shaded from the sun, and placed in a cold pit for a few weeks until they commence sending out roots, and then placed in a gentle bottom heat, will make nice plants. After being potted off they should be kept close and shaded, until they have taken fresh hold of the soil. To keep them bushy the point of the shoot should be pinched out, otherwise they are apt to become lanky. The best soil to pot them in is sandy loam, with about one-fourth of fibrous peat; too great a proportion of the latter, however, is apt to make them grow loose; such as have this tendency may have more loam. After the first year (during which they had best be preserved under glass entirely), they may be set out of doors in a sheltered place, where, from May to the end of September, water may be given rather freely, especially when growing; they may have a little weak manure-water occasionally; but in their season of rest they should have but just sufficient to keep them from drooping. The young plants will require repotting as soon as they are as large as desired; the best time for repotting is early in summer or autumn. Old plants merely require an annual top-dressing. The Acacia is liable to be infested with white scale, especially old plants; the most effectual remedy is to lay the plant on the ground, and water it well with clay-puddle of a creamy consistency, with a rose on the can, or else immerse the plant in it, leave it on for a few days, when it may be rubbed away, and the dusty appearance effaced by a good syringing.

The following list comprises a few select varieties:—

Alata.—A very pretty plant, blooming freely, when a foot high, from February to the middle of July. It attains a height of from six to eight feet, when grown as a large specimen. It is a winged-stemmed species, with dilated leaf-stalks, in the angles of which the flowers are produced.

Armata.—One of the best old varieties, so named from being armed with spines at the base of each phylloid or leaf. The blossoms are of a rich golden-yellow, and produced from the base of nearly every leaf; the flowering period is also very extended, embracing the whole first half of the year, and may be had in bloom either as a small plant of from twelve to eighteen inches to a tall specimen of ten feet, and measuring six feet in diameter. It may be made to bloom throughout the winter with a slight forcing, provided the young wood has been previously ripened early. Even when out of flower the beautiful green of its foliage causes a nice healthy plant of it to be admired as one of the most attractive plants in the cool greenhouse.

Decipiens.—Remarkable for the appearance of the leaves, which look as if the points had each been cut off; an abundant bloomer when well grown.

Diffusa.—Somewhat drooping and dwarf, blooms freely in May and June.

Grandis.—A very interesting species, flowers bright orange colour; of dwarf habit, and, therefore, very suitable for small greenhouses, where it may be had in bloom throughout the spring and greater part of summer.

Leptoneura.—Remarkably pretty from its graceful branches, which are covered with deep orange-coloured blossoms in the flowering season. Its leaves (phyllodia) are about two and a half inches long, wavy, and rough on the surface.

Lophantha.—Has pinnated leaves, and long spike-like, whitish flowers.

Myrtifolia.—A handsome little plant, with leaves myrtle-like; the blossoms produced in small racemes along the sides and at the ends of the young shoots, colour light yellow.

Pensans.—A climbing, rampant-growing variety, very beautiful on account of its long feathery foliage; the blossoms are sulphur-yellow, intermixed with rather dark red. In Madeira, its native country, it speedily reaches the tops of the highest trees, and there spreads itself in every direction.

The two figured in our plate are of recent introduction, and both fine plants, that need but to be seen in blossom to be duly appreciated.

No. I.—*Acacia celastrifolia* is a strong-growing species from the Swan River colony, possessed of a fragrance much resembling that of the hawthorn; one large plant is enough to scent a large greenhouse. If a gracefully-formed, much-branching evergreen shrub, with broad and shining green leaves, and producing what may be called a load of pretty sulphur-coloured flowers for two months in early spring, be desired for the conservatory or greenhouse, this is certainly entitled to the first recommendation. It attains a height exceeding six feet.

No. II.—*A. Hispidissima.* A very handsome species, bearing dense heads of bloom, of a rich golden or orange-yellow. The foliage is also highly ornamental. From the same district as the preceding. Both are deserving of being in every good collection of greenhouse plants.

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LINUM GRANDIFLORUM RUBRUM.—I flowered this charming annual beautifully the past season in the open border, and much better than in the greenhouse. It bloomed profusely, and yielded abundance of seed.—R. T. E.

A FEW WORDS ON THE PANSY.

BY A NOTTINGHAM FLORIST.

LOOKING over some papers that I had drawn up on various subjects connected with Floriculture, in the hope of being able to forward something for insertion in the *Floricultural Cabinet*, I found a few remarks under the above head; should you, on a perusal of them, consider they are worth seeing the light, make such use of them as you may think proper, for here they are.

The Pansy is a flower universally admired, and perhaps without a rival in the extent to which it is grown. We find it in the garden of the nobleman and cottager alike, throughout the length and breadth of the land; and that which was, within the memory of even young florists, but a mere weed, is now a highly-prized exhibition flower. The advance that has been made in it is sufficient, one would think, to induce the florist to despair of nothing; look at some of the representations of a fine Pansy, as seen when the *Cabinet* was first brought into existence, and then compare them with the flowers we now cultivate, and mark the change! No more narrow petals appear, nor irregular outlines, but instead of this, flowers almost as circular as if drawn with the help of compasses, of superior size, and splendid marking. Instead of the flimsy, thin petals of that day, feel the substance we now achieve! And then we have made no little progress in that most important particular—cultivation, although there are some persons, and in fact not a few, who complain they cannot grow Pansies. To help these, is now my object; and if, in the following remarks, I have penned a few sentences that may tend to help them, I shall feel highly gratified.

May and June are the two months during which the Pansy is in perfection, the object of the cultivator should therefore be to have his plants in good condition for flowering at that period.

To commence with cuttings—July and August is the time for taking them off; I always prefer the side shoots, selecting them about an inch and a half long, as they invariably make the best plants and root sooner than others; but if soil be drawn up round the plants, many such shoots will root at a joint, and will then merely require to be taken off and planted. I never use hand-glasses for striking, but put the cuttings in the open border, merely attending to them with water if the weather prove dry, and shade from too much sun until they have made root; the surface soil should also be frequently stirred among the cuttings, and the weeds kept down.

By the end of September I begin to pot them, using large "sixties," with plenty of drainage. The only compost I use consists of good fibrous loam, with a very small proportion of leaf-mould and thoroughly decomposed cow-dung that has lain on a heap for two years, and frequently turned. After they are potted I set them in a cold frame facing the south, and within a short distance of the glass. Here they remain through the winter, having as much air given them as possible, by taking off the lights entirely in fine weather and propping them open on all possible occasions; watering is attended to, and when done the plants are set out of the frame for the moisture to drain away before they are returned, by which means the inside of the frame is kept dry. In a sharp frost I merely lay over the lights a straw hurdle to preserve them.

By the middle of February I repot the stock into "thirty-twos," with the same soil as before, and plenty of drainage. It is well to remove some of the soil from the ball, but care is necessary to avoid any injury to the delicate and tender fibres. When potted I put them back into the frame again, raising them on bricks so as to be nearly up to the glass. Air and water as previously, and to make nice plants I turn the pots round frequently, and stir the soil; by this means the plants become stiff, and nicely formed.

In order to make specimen plants, I tie out the side shoots, at regular intervals, to wires twisted round and beneath the rims of the pots; a little trouble taken in this respect will make handsome plants.

For exhibition blooms I take away most of the side shoots, and, according to the strength of the plants, grow them to one, two, or three stems. By the third week in April many of them begin to show bloom, and according to the time fixed for exhibition, I begin, a month or three weeks previously, to pick off the flowers then showing themselves, in order to concentrate the strength of the plant; and to encourage them, I give liberal watering of liquid manure, rather freely diluted; what I always use is a peck measure of an equal quantity of sheep and cow-dung in about twenty gallons of water. Under such treatment, as now detailed, the application of this stimulant increases the size and beauty of the blooms in an astonishing degree.

When the show flowers begin to expand, I shade them daily from the sun by a thin covering of canvas thrown over the sashes, but only in sunshine, for kept on too long the plants are liable to become drawn, and the only object is to keep the blooms intended for exhibition from direct sunshine. Such flowers as are in perfection within two or three days of the time fixed for the show, I take off and keep in a cool shady place in bottles, where they are free from dust, and renew the water from time to time. They will keep thus better than if allowed to remain on the plants.

To secure a succession of bloom through the summer, plants may be put in during May, and the early part of June. In growing the Pansy out of pots, it is desirable to select a border where the plants will be screened from the sun during the middle of the day; and in forming a border for them, which ought always to be done to grow them properly, the natural soil should be removed to the depth of a foot or fifteen inches, and a compost the same as recommended for potting put in. The plants should by no means be crowded, eighteen inches between each is not too much; they should not be permitted to grow too bushy however, or the flowers will deteriorate in size; and liquid manure may be given liberally, keeping the plants to three main stems where blooms of large size are required. If dashing rains set in, it is necessary to protect the plants with hand-glasses, which should always be in readiness. Injury from this cause not unfrequently disappoints the hopes of those who cultivate the Pansy for exhibition in the border, and for this reason, as well as others, I would strongly urge the advantages of cultivating them in pots, which renders the grower independent of the weather, as well as of natural soil where unsuitable, and situation. Under frame culture his stock is safe from wind and rain, which frequently set in and damage blooms otherwise situated when least expected. Besides all which the system of pot culture has great advantages for spring blooming, as compared with the open border.

The subjoined descriptive and classified list contains the names of such flowers as I know to be good and have grown myself; those who are about to purchase may select from it with entire reliance.

SELF-COLOURED.

Blue Beauty (Betteridge), dark blue, with a lighter centre.
Flower of the Day (Downie), intense dark purple, large and fine.
Mary Taylor (Laird), shaded blue, fine.
Memnon (Turner), dark purple.
Omar Pacha (Dickson), intense purple.
Primrose Perfection, light primrose, with deep eye.
Royal Albert (Turner), shaded purple.
Royal White (Thompson), good.
Yellow Model (Hooper), very fine yellow, and excellent eye.

WHITE GROUNDS.

Aurora (Bell), broad purple margin.
Duchess of Rutland (Thompson), narrow lilac margin.
Earl Mansfield (Dickson), purple margin.
Eugenie (Dickson), belted with light purple, fine.
Lady Carrington (Hunt), light purple, narrow margin.
Marchioness of Bath (Wheeler), upper petals blue, and blue margin.
Maria (James), broad purple margin, very fine.
Miss Nightingale (Dickson), deep purple.
Royal Visit (Dickson), upper petals and margin dark plum.
Sir E. Lyons (Hooper), broad, rich, deep purple margin, and fine eye.

YELLOW GROUNDS, OF VARIOUS SHADES.

Admiral Napier, deep maroon margin.
Alfred the Great (Taylor), broad bronzy-red margin.
British Queen (Dickson), lilac margin.

Comet (Turner), broad mulberry-crimson margin.
Colonel Wyndham (Laing), rich deep purple belting.
Crimson Perfection (Turner), narrow crimson margin.
Duchess of Wellington (Downie), purple belting, fine eye.
Duke of Newcastle (Downie), purple, medium margin.
Father Gavazzi (Holland), broad plum-coloured margin.
Fearless (Schofield), broad crimson-purple margin.
Great Western (Hooper), broadly margined with maroon.
Lord John Russell, crimson margin.
Lord Palmerston (Turner), upper petals deep plum colour, purple margin.
Miss Talbot (Dickson), purple margin.
Master George (Schofield), bronzy margin, very fine.
Monarch (Hale), upper petals and margin maroon.
Pandora (Hunt), chocolate or mulberry margin.
Rev. J. H. Gossett, dark crimson margin, good.
Royal Standard (Dickson), deep purple margin, fine eye.
Sampson (Bragg), broad maroon margin.
Sir Joseph Paxton (Betteridge), broad intense maroon margin.
Victory (Hale), reddish bronze margin.

REMARKS ON POINSETTIA PULCHERRIMA.

BY MR. W. TURNER, GARDENER, SANDOE HOUSE.

NOTWITHSTANDING the great beauty of a compact, bushy, well-grown specimen of this plant, it is not often that one has the pleasure to see its capabilities fully brought out. The plants commonly seen are long, lanky, ugly objects rather than showy; and, indeed, generally speaking, the *Poinsettia* would appear to have received less attention than it decidedly merits. I have had several fine plants under my care for some years, and for the information of others who are willing to turn a little attention to it, I will proceed to explain how I treat it. In the first place, I will just observe that the flowers, as is well known, are themselves insignificant. The value of the plant arises from the richly-tinted crimson and scarlet *bracteæ* borne on the terminations of the branches, and that the finest of these are produced on shoots that are the *best ripened.*

As soon as the plants are gone out of flower, about February, they are placed in a cool and airy greenhouse, and watered very sparingly; after they have remained a week or two I prune back the shoots to within about three or four buds. After this they should be kept dry for a few days, being apt to bleed very much; indeed, I continue to give but little water until the young buds begin to swell, when I give them more, with occasional syringings, in a house where the temperature ranges from sixty to seventy. When the shoots are two inches long, I turn them into fresh pots, or at least reduce the balls of earth, and fill up with fresh compost, consisting of turfy loam, peat, and leaf-mould, with a little lime-rubbish and broken crocks. I now keep them in a moist, shady atmosphere until they have grown on, the temperature gradually rising, and they begin to make nice young wood. By the end of June the plants are taken into a close greenhouse where they have the full benefit of the sun. By the end of August I begin to reduce the quantity of water again, and the temperature ranges from fifty-five to ten degrees higher. The flower-bracts will soon appear, and when fully expanded, if allowed to be in a cooler atmosphere than forty-five, the leaves are apt to droop; as they come into flower water is given freely, and the temperature maintained nearly the same. It must be remembered that the finest crimson bracts are obtained from well-ripened shoots of the same season's growth. To secure them, therefore, this object should be borne in mind.

Propagation is very easy—cuttings made of the young wood, with two or three eyes, cut close under the last one, will root rapidly in sandy loam, with bottom heat, covered with a bell-glass, and a temperature of sixty-five. Such cuttings will make nice plants, and produce heads of bloom and bracts the first season; when pruned back and treated as above they will be fine objects the second season. When cuttings are made, care should be taken that any of the white viscid juice does not get into scratches or cuts on the hands, being very injurious; and to allow the cuttings to remain for a couple of days on a shelf in an airy part of the greenhouse, to dry up the sap, which will assist their striking.

This truly beautiful stove plant was introduced by Mr. James McNab, of the Royal Botanic Garden, Edinburgh, who brought plants from Mr. Buist, of Philadelphia, in 1834. In 1828 it was sent to Charleston, by M. Poinsette, who discovered it in Mexico, whence Mr. Buist received it.

ON RAISING THE PETUNIA FROM SEED.

BY MR. WILLIAM KENT, CLAPTON.

ALTHOUGH the Petunia has been brought forward as a plant possessing great capabilities as an improving flower for a comparatively limited number of years only, yet, in that period, much has been done by florists to raise its character, and its form and substance have been greatly improved, although much remains to be done.

As specimen plants, Petunias are, if well grown, deservedly admired, while for the bed or border they are among the most handsome flowers we grow, and, in this respect, are entitled to precedence over many others.

As you have among your subscribers, many, doubtless, who are cultivators of this flower, I have drawn up a few remarks on the best plan of raising it from seed, which will probably be acceptable to such, and may induce others to cultivate my favourite flower more extensively than they do, as well as help towards the origination of new and good hybrid varieties.

At the commencement of March, I begin by preparing my compost, consisting of one-third well-decomposed leaf-mould, and two-thirds of good peat soil, using a little silver-sand in combination with both. Until the time for sowing arrives, about three weeks later, I frequently turn the heap over, and expose it to the atmosphere, picking out all worms and insects that are to be found in it. On sowing the seed, I prefer to use wide pans, they being much more suitable for the purpose than pots, and spread a rather large amount of broken crocks over the bottom, to allow of free drainage, and cover them up with a layer of moss, to prevent the soil from insinuating itself among the drainage, and so choking it up. The compost, rather finely sifted, is then added, and pressed gently down with the hand; the seed is lightly sprinkled on the surface, and thinly covered with soil. When sown, I have a frame prepared for the reception of the pans, where the heat ranges about sixty degrees, and the atmosphere kept rather moist. The young plants make their appearance in a fortnight, and are, at that time, rather subject to the attacks of woodlice and slugs, which will, on that account, require to be carefully looked after and destroyed whenever they appear. For want of attention to this, when I first commenced Petunia growing, I not unfrequently lost a whole panfull of seedlings in the course of a single night.

At this period, air must be admitted rather freely, and the pans raised near the glass, in order to prevent the young stock being drawn up, as well as to keep them strong and vigorously healthy; they will require frequent watering, but not more should be given than will slightly moisten the soil, or there will be some danger of doing them more harm than good, especially if the frame is kept too close. When the plants have grown a little, they will be getting confined for space; and the strongest of them should be pricked out into fresh pans, which should be again returned to the frame, and shaded from the sun until they have taken fresh hold of the soil. They should also have air given daily, when circumstances permit, and in a little time all will be ready for potting off, each in a small forty-eight-size to commence with, using plenty of leaf-mould in the composition of the soil. When potted, they may be set in a cold frame or pit, where they should have a full supply of air.

Such is a brief outline of my method of raising the Petunia from seed, by which I am invariably successful, and lose very few. It only remains for me to advise, most strenuously, for the improvement of this beautiful class of flowers, that growers would throw away, as soon as they bloom, all such as do not possess qualifications of a superior kind, especially as regards substance, size, outline, and colour, and before the best can become impregnated by inferior kinds; by this means alone can the character of the plant be improved, or even kept up to the standard.

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ON THE CULTURE OF THE FUCHSIA.

BY MR. EDMUND MEWETT, BROMLEY.

AMONG the many plants and flowers now in cultivation for greenhouse and conservatory decoration, none is more useful than the Fuchsia, from the great length of time it may be had in bloom, and the ease with which it is managed. The Fuchsia is a favourite with everyone; and where a good selection is grown they make a splendid show. Although so easy to cultivate that any one may *grow them*, yet to have them in perfection requires particular management and a good deal of pains to be taken with them. Having particularly directed my attention to the cultivation of the Fuchsia, with success as an amateur, and to the admiration of all who have seen my collection (consisting of fifty varieties, and some of them the best in cultivation), I will now offer a few remarks on my system of management, and perhaps they may be acceptable to some readers of the *Cabinet*, particularly to young amateurs who, like myself, are fond of this pretty tribe.

The best time to put in cuttings is the latter end of August or beginning of September, you then get your plants nicely rooted before winter sets in; some prefer to strike cuttings in the spring, I prefer the autumn striking however, as the plants are then ready for starting early in the spring. Commence by selecting the healthiest cuttings you can find, cut them close under the third joint (I never recommend cuttings of more than three joints long), then fill a seed-pan or propagating-pot with compost consisting of leaf-mould and silver-sand to within half an inch of the top, which cover with silver-sand, and put in the cuttings one joint below the surface, water to settle all down, and see that the drainage is good, then set them in a frame and shade them from the heat of the sun; with sufficient moisture they will soon strike root, and may be removed to the greenhouse; give them no more water than will keep them alive all the first part of the winter until you want to start them off into growth, which can be determined according to the time that you wish to have them in bloom, and according to the means at command for affording artificial heat. To those who have a good hotbed frame, with an intermediate pit or house, I should recommend to pot them off and give a good start in the hotbed until they are about four or six inches high, when they may be removed to the intermediate house, kept at about fifty-five degrees of temperature. Here they will progress well, and according as they need pot-room, shift them to a larger size. Syringe them occasionally until they begin to bloom, then give them their last shift into twenty-four-sized pots; they require room to branch out all round, and should be turned occasionally to prevent their becoming one sided. After they have become established from their last shift, they will be blooming freely, when they may be removed to the conservatory.

Those who have not such means at command must be content to wait until the season arrives when they push of themselves, unless a hotbed can be made up about the end of February or March, which will greatly facilitate their starting and bring them on much earlier. In due time remove them to the greenhouse, and shift them on as recommended before.

My method of growing them is to leave the leading shoot uninjured, but everyone may grow them according to their taste. As soon as they have done flowering, set them out of doors to take their chance until the nights begin to be frosty, the young wood will be nicely ripened by that time; at this period the best place for them is under the stage of the greenhouse. When the leaves have fallen prune them in to the form in which it is desired to grow them the next season; I generally spur mine close in to the main stem. Start them into growth again, and as soon as they show their buds knock them out of their pots, reduce the ball of earth, and shift them into smaller sizes, for by starving them a little they will be brought into flowering sooner; place them in the intermediate house, if there be one, and as soon as they begin to show flower give them their final shift; the plants will bloom finer and last in flower a long time, for when they are coming into full flowering condition they are just getting established in the last shift, and there is sufficient nourishment to last them for some time. As soon as they come into full flower they require shading with a blind from the effects of the burning sun, and a good syringing every morning is very beneficial; during hot weather they require a very liberal supply of water, for if the soil is allowed to get dry, the bloom is spoiled.

As a window plant the Fuchsia does very well grown out of doors, where they have the sun morning and evening. I have grown quite a little collection in my windows the last two years, and they have flowered beautifully from about the middle of June till September; I give them a good deal of syringing, and often water them twice a day; although they have no sun on them until towards evening, almost every one who passes has remarked my little stock, while many inquire how I manage them so well. This has induced me to take up my pen and contribute my mite to the fund of information afforded by the *Cabinet*.

The soil I recommend for the Fuchsia is leaf-mould, decomposed cow-dung, loam from turves, and enough silver-sand to allow the water to pass freely through, and good drainage.

The following are some of the best varieties I would recommend for cultivation:—

Duchess of Lancaster.
England's Glory.
Bank's Glory.
Wonderful.
Prince Albert.
Lady Franklin.
Prince of Wales.
Venus de Medici.
Duke of Wellington.
Omar Pasha.
Cartonii.
Queen of Hanover.
Maid of Kent.
Queen Victoria.
Countess of Burlington.
Admiral Boxer.
Favourite.
Lady of the Lake.
Beauty of the Bower.
Hendersonii (double corolla).
Clapton Hero.
Scarlatina Reflexa.
Inaccessible.
Pearl of England.
Nonsuch.
Snowball.
Prince Arthur.
Napoleon III.
General Oudinot.
Serratifolia, good for winter flowering.
Vesta.
Climax.
Empress Eugenie.

OBSERVATIONS ON HYBRIDISING.

COMMUNICATED BY MR. SHEPPARD, BURY.

RISING from a perusal of that excellent but expensive compilation, "The Book of the Garden," by Charles Mackintosh, Esq., I was forcibly struck with the following remarks on Hybridising, from the pen of a gentleman who has devoted a great share of attention to this most interesting branch of Horticulture, namely, Isaac Anderson, Esq., of Maryfield, near Edinburgh. I have, therefore, taken the liberty to transcribe them for insertion in your widely-known and useful *Cabinet*, pleading the value of the communication as an apology for the intrusion of so lengthy a quotation. Mr. Anderson says—

"To go fully into the theory and practice of hybridising, a volume might be devoted to the subject, and still leave it unexhausted. To start with the beginning would be to start with creation itself—in fact, nature, as conjectured by Linnæus, was occupied by but few original types of the innumerable vegetable forms which have been transmitted to us. How these few first types, if that great authority was right in that belief, have become varied and multiplied, from classes to tribes, from tribes to genera, and from genera to species and endless varieties, belongs to those mysteries of Divine agency which set all inquiry at nought, and upon which it were equally unprofitable and presumptuous at the present time to speculate. For, who, in treating of such a science, dare invade a field where the Omnipotent invoked no aid from man—ere yet, indeed, man was;

while the sun and skyey influences, and the whole host of insectivorous races, now extinct, were perhaps but *parts* of the agencies and instrumentalities by which,

> 'With herbs, and plants, and fruitful trees,
> The new-formed globe he crowned,'

and made it fit for man's use and habitation? Who can speculate now on those atmospheric properties, 'instinct with life,' under whose influence man grew and increased in strength, till the span of his existence extended to near a thousand years—when there were giants on the earth—

> 'When man was in stature as towr's in our time,
> The first-born of Nature, and, like her, sublime?'

A life-giving and life-sustaining Spirit breathed the will, and effected the purpose of the Creator. Perhaps a larger portion and a more genial form of electricity than now obtains, may have imparted a principle of higher vitality to the air, and through that medium have communicated a stronger impulse, and more enduring energies, to both animal and vegetable life. This may or may not have been; certain it is that a change *has* taken place. Since the Deluge, the vital forces have been greatly weakened. Man, since then, has scarce lived a tithe of his former term; and the vast exhumations of fossil flora bespeak an exuberance and variety of vegetation, in temperate zones, that have no parallel at the present day even in tropical regions.

"Why do we now see natural families with *genera* whose affinities are indisputable, and yet in their extreme links so dissimilar? Perhaps no one of the larger family of plants has its intermediate connections better filled up than the *Ericaceæ*, yet how many links are awanting in the chain between the *Rhododendron arboreum* of India, of forty feet high, and the *Chamæledon* (Azalea) *procumbens* of our own Highland mountains, of only four inches, or some of the smaller heaths! Though all allied, how many links are there between the various tribes, and even genera, of this most interesting family; *e.g.*, between the *Vacciniеæ* and the *Pyroleæ* as separate *tribes*, or between the *Rhododendron* and the *Menziesia*, as separate *genera*. The scarcely-known elevated plateaus and ridges of the Andes have already yielded up some kindred races in the *Bejaria* and *Thibaudia;* and who can tell if, when better explored, many more links wanting may not be supplied? Travellers have observed examples of the Rhodoreæ on the high mountains of the Hawaian group of isles in the Pacific, and in Manilla, Malacca, and other islands of the Indian Ocean, as well as in North-west America, yet unknown to gardens. Thirteen species of this family have been observed on one hill in Borneo alone, and at least half that number in Java. Dr. Hooker has reclaimed about thirty species from the Sikkim ranges of the Himalaya, and of such varied growth and aspect, that our thymes may represent the one group, and our oaks the other—one tiny thing (*R. nivale*) creeping on the ground at 18,000 feet above the sea, and another (*R. barbatum*) attaining a stature of sixty feet.

"All these discoveries have done much to fill up many gaps in this widely-distributed family, and the discoveries of future travellers may fill up many more.

"But how many tribes, genera and their species, are for ever lost! Man inhabits but the *disjecta membra* of a former world. With continents, now beneath the ocean, are buried—perhaps for ever lost—genera, which, if restored, might supply all those gaps which leave existing races so wide apart. But nature has left materials to work upon, and the art and ingenuity of man may do much to fill up the blanks.

"A very eminent nurseryman—the late Mr. Cunningham of Comely Bank—so far filled up one link of this order, by hybridising the *Phyllodoce* (*Menziesia*) *cærulea* with the *Rhodothamnus chamæcistus*, and producing therefrom the beautiful (so-called) *Brianthus erectus*. But the parents were too far remote, and the progeny—a proper mule—is consequently barren. It is somewhat singular, that while the *M. cærulea* will cross with the *Rhodothamnus chamæcistus*, the latter will not be crossed with it. It was the Menziesia that bore the seed from which the so-called Brianthus was raised. I speak from my own experience in this matter, having, before Mr. Cunningham's experiment was known, attempted unsuccessfully to cross the *Rhodothamnus* with the *M. cærulea*, though I have since succeeded in ripening seeds and raising plants from the cross inverted. These I sowed on 18th June, 1850, and on 10th September four young plants had come through.

"To those who would attempt the hybridising or cross-breeding of plants, I will now offer some suggestions for their guidance.

"It is an *essential* element to success that the operator be possessed of indomitable *patience, watchfulness, and perseverance*. Having determined on the subjects on which he is to operate, if the plants are in the *open ground*, he will have them put into pots, and removed under glass, so as to escape the accidents of variable temperature—of wind, rain, and dust, and above all, of insects. A greenhouse fully exposed to the sun is best adapted for the purpose, at least as regards hardy and proper greenhouse plants.

"Having got them housed, secure a corner where they are least likely to be visited by bees or other insects. The plants which are to yield the pollen, and the plants which are to bear the seed, should be both kept in the same temperature; but where this cannot be managed, pollen from an outside plant, in *genial* summer weather, may be used, provided it can be got; for there is a class of insects which live exclusively on pollen, and devour it so fast after the pollen vessels open, that, unless the plant is under a hand-glass (which I would recommend), it is scarcely possible to get any pollen for the required purpose. To secure against chances of this nature, a sprig with opening bloom may be taken and kept in a phial and water inside, where it will get sufficient sun to ripen the pollen. But here, too, insects must be watched, and destroyed if they intrude. An insect like, but smaller, than the common hive bee, which flits about by fits and starts, on expanded wings, after the manner of the dragon-fly, is the greatest pest, and seems to feed exclusively on pollen. The hive bee, the humble bee, and wasp give the next greatest annoyance. All these may be excluded by netting fixed over apertures from open sashes or the like. Too much care cannot be bestowed on excluding these intruders, whose single touch, in many cases, might neutralise the intended result; for the slightest application of pollen native to the parent plant is said by physiologists to supersede all foreign agency, unless, perhaps, in the crossing of mere varieties; and the truth of this observation consists with my own experience. Without due precaution now, the labour, anxiety, and watchfulness of years may issue in vexation and disappointment.

"As a further precaution still, and to prevent self-fertilisation, divest the blooms to be operated on not only of their anthers, but also of their *corollas*. Remove also all contiguous blooms upon the plant, lest the syringe, incautiously directed, or some sudden draft of air, convey the native pollen, and anticipate the intended operation. The corolla appears to be the means by which insects are attracted; and though, when it is removed, the honey on which they feed is still present, they seem puzzled or indifferent about collecting it; or if, haply, they should alight on the dismantled flower (which I never have detected), the stigma is in most cases safe from their contact.

"It will be some days—probably a week or more, if the weather be not sunny—ere the stigma is in a fit condition for fertilisation. This is indicated in many families, such as *ericaceæ*, *rosaceæ*, *scrophularineæ*, *aurantiaceæ*, etc., by a viscous exhudation in the *sutures* (where these exist) of the stigma, but generally covering the entire surface of that organ. In this condition the stigma may remain many days, during which fertilisation may be performed; and this period will be longer or shorter as the weather is sunny, or damp, or overcast.

"In certain families, such as the *Malvaceæ*, *Geraniaceæ*, etc., where the stigma divides itself into feathery parts, and where the viscous process is either absent or inappreciable by the eye, the separation of these parts, the bursting of the pollen, the maturity of the stigma, and all which a little experience will detect, indicate the proper time for the operation, sunny or cloudy weather always affecting the duration of the period during which it may be successfully performed.

"As to the proper *time* and *season* best adapted for such experiments, a treatise might be written; but here a few remarks must suffice.

"As for *the season of the year*, from early spring to midsummer I would account the best period; but, as I have just observed, I regard all cold, damp, cloudy, and ungenial weather as unfavourable. On the other hand, when the weather is *genial*, not so much from sun heat as at times occurs from the atmosphere being moderately charged with electricity, when there is an elasticity, so to speak, in the balmy air, and all nature seems joyous and instinct with life, this, of all others, is the season which the hybridist should improve, and above all if he attempt muling.

"The hybridist should be provided with a pocket *lens*, a pair of wire *pincers*, and *various coloured silk threads*.

"With the *lens* he will observe the maturity of the *pollen* and the condition of the *stigma*, whether the former has attained its *powdery*, and the latter (if such is its nature) its *viscous* condition. If he find both the *pollen* and the *stigma* in a fit state, he will, with the *pincers*, apply an anther with ripened pollen, and by the gentlest touch distribute it very *thinly* over the the summit of the stigma. The operation performed, he will mark it by tying round the flower-stalk a bit of that particular coloured *silk thread* which he wishes to indicate the particular plant which bore the pollen, and at same time tie a bit of the same silk round the stem of the latter, which will serve till recorded in a note-book, which should be kept by every one trying experiments on a large scale.

"It would be out of place here to give even a general outline of the parts of flowers, to show how these differ the one from the other in various tribes of plants. The experimenter, if he is not a botanist, and even though he is partially acquainted with the science, must, from books and observations, make himself familiar with the various organs, male and female, of each separate family of plants on which he means to work, otherwise he will be often puzzled where to find them, or even to distinguish the one from the other.

"As for the *time of the day*, it may be done almost any hour from 9 A.M. till 4 o'clock P.M., and with equal success. My other avocations have often limited me to earlier and later hours; but I would suggest from ten till two o'clock as the best time of day, always preferring fair, genial, and sunny, to chill, damp, or cloudy days.

"On recurring to my note-book for 1850, I find a very favourable state of atmosphere occurred in the beginning of March of that year, when I crossed the *Phyllodoce* (*Menziesia*) *cærulea* with the *Rhodothamnus* (*Rhododendron*) *chamæcistus*, sowed on 18th June that year, as above noticed. At this time, too, I succeeded in crossing the above *Rhodothamnus* with a large-leaved white-flowered Nepal *species of Rhododendron*, the blooms of which were two inches across the limb. But though I ripened that season three or four pods of this last cross, each pod of seed beautifully ripened, all of which I sowed, I cannot assert that any one seed vegetated; and though it is now nearly three years since the seeds were sown, I still preserve the seed-pot. And I may remark here, from my own experience, that two years is not too soon to despair of vegetation even of seeds from abroad, on which, of course, no cross had been effected.

"Few seasons have occurred so favourable for the hybridist as the short interval in the beginning of March, 1850, above alluded to. Singularly enough, happening to visit Lord Rosslyn's gardens at

Dysart House, on the 1st of June that year, with the late Professor Dunbar, Mr. M'Intosh (the author), and Mr. Sprott, I observed the above *Rhodothamnus* marked as crossed. I found it had been crossed at the bove period, and with *Rhododendron arboreum!* The seed-pods were then fully swollen, and approaching maturity; but I have not heard that anything has come of them.

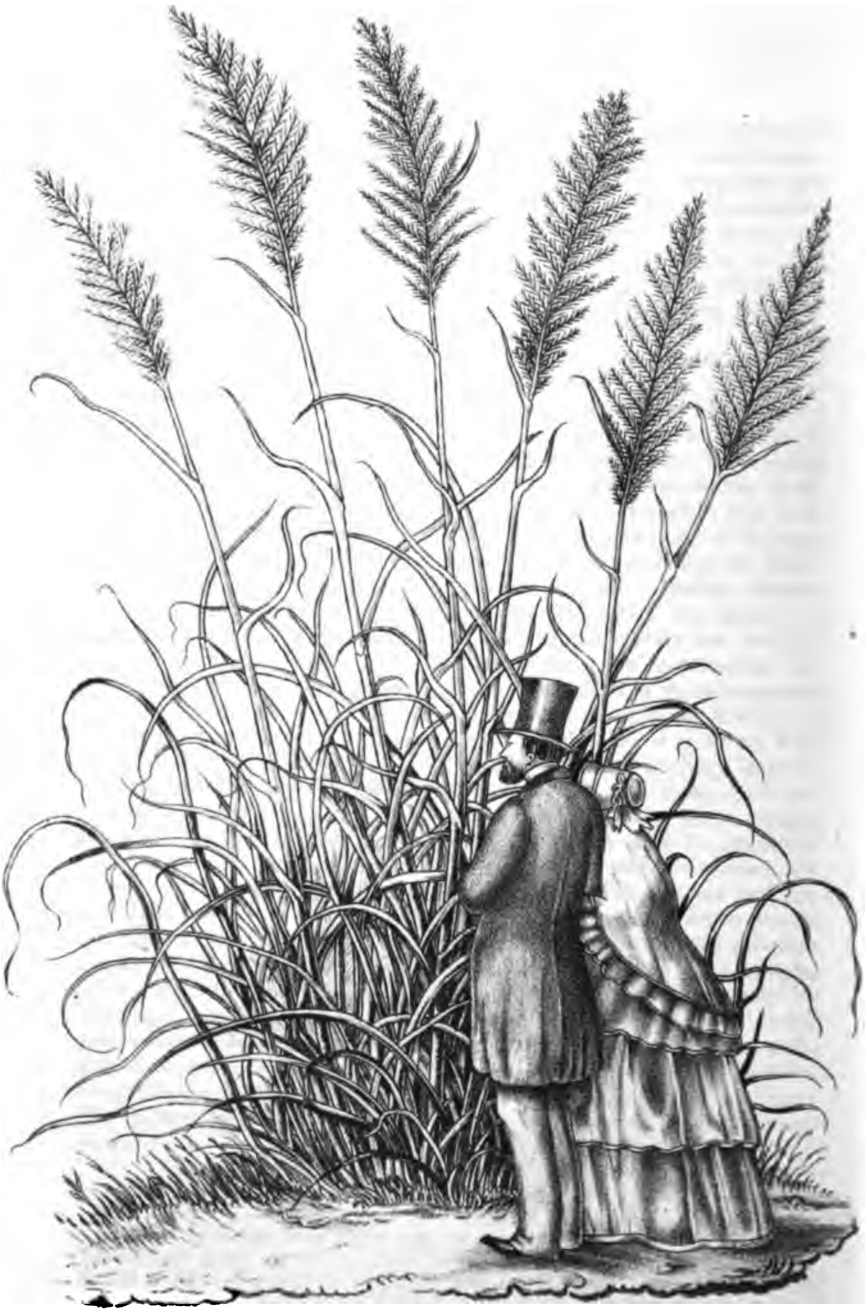
"It is quite unnecessary to offer any directions as to the results to be effected. If it is desired to reproduce the larger, finer formed, or higher coloured bloom of a plant having a tall, straggling, or too robust a growth, or having too large or too coarse foliage, in a plant without these drawbacks, I need not suggest to select, in another species of the same family, a plant of an opposite character and properties—say of dwarf compact growth, handsome foliage, and free flowering habit; and if such can be obtained, work with it, making the latter the seed-bearer. Or, if it be desirable to impart the fragrance of a less handsome kind to another more handsome, I would make the cross upon the latter. I cannot speak with certainty from my own experiments how far perfume may be so communicated; but I have some things far advanced to maturity to test it; and I entertain the hope that fragrance may not only be so imparted, but even heightened, varied, and improved. Or if it be desired to transfer all, or any valuable property or quality, from a tender exotic species to a native or hardy kind, work upon the latter; for so far as constitution goes, I agree with those who hold that the female over-rules in this particular. I would offer this caution to those who wish to preserve the purity of certain flowers for exhibition, especially those having white grounds, not to cross such with high-coloured sorts. I once spoiled a pure *white* bloomed Calceolaria for exhibition by crossing it with a *crimson* sort; all the blooms on those branches where the operation had been performed, being stained *red*, and not the few flowers merely on which the cross was effected.

"In this note, already too long, I cannot further illustrate my remarks, by recorded experiments in the various tribes upon which I have tried my hand; but I cannot leave the subject without inculcating, in the strongest manner, the observance of the rules I have laid down to prevent vexatious disappointments. If any doubts arise about the cross being genuine or effectually secured, let not the seeds be sown. Three, four, five, and even six years, must oftentimes elapse with trees and shrubby things ere the result can be judged of; and if eventually it prove a failure, or even doubtful, it is worse than labour lost, inasmuch as it may mislead. If there is no great departure from the female parent, the issue is to be mistrusted. It is singular, if well accomplished, how much of both parents is blended in the progeny. Gentlemen eminent as physiologists have read nature's laws in these matters a little differently from what my own humble experience has taught me, and assigned to the progeny the constitution and general aspect of the *one* parent, while they gave the inflorescence and fruit to *cærulea* expand in summer and autumn; its root and lower leaves resemble the daisy, from which rise many short delicate flower-stalks; it is quite a little pet plant, coming to us from Virginia, and likes moisture. *Astragalus Monspessulanus* is entitled to favourable notice from its clustered pink blossoms, streaked with white, its orange scarlet cups and long *Acacia-like* leaves; it grows in dry places about Montpellier, and is displayed to the greatest advantage when its stems depend from rockwork; its beauty is seen early in June.

Erodium Romanum, said by Linnæus to have been found growing in the streets of Rome, shows its pink flowers in April, which continue during most of the summer, and produce seeds in abundance; they are very curious from their screw-like form. *Primula longifolia* was received from France, showing early in May its shaded pink blossoms, with yellow and white eye; it requires shelter from the rays of a very hot sun, succeeding best on rockwork. The delicate *Lychnis Alpina* exhibits in May from a thick tuft of foliage, numerous stems, four to six inches high, crowned with flowers, large for the size of the plant, a bright red colour. *Salvia Indica*, grows to the height of four or five feet; its leaves are large; in June and July the blossoms appear, their upper petals are purple, reminding me in shape of a hooded chaise; the lower ones are yellow and white with rich brown spots; the plant is in consequence beautiful and curious. The bold magnificent yellow flowers of *Centaurea aurea* appear in August and September; it is found wild in the south of Europe. From South Carolina we have derived the magnificent flowered *Campanula persicifolia;* in moist rich soil it attains three or four feet in height, producing its large purple blossoms in August and September. The Swiss and Piedmontese mountains are the native localities of *Agrostemma flos jovis;* its bright red flowers, with pale yellow eye expand in clusters in June and July; and its leaves and stalks are covered with a white woolly substance. In Virginia the pretty little creeping *Phlox subulata* grows wild; its blossoms put forth in May, and are pale purple, with a dark bright purple eye; it should be renewed frequently by cuttings. *Alyssum montanum* is a small procumbent plant, with pale green leaves; about the end of April we welcome the well-known sight of its profusion of very small brilliant yellow flowers, covering the points of its branches; it may be increased by cuttings; the mountainous parts of Switzerland and Austria are its native localities.

* * *

GRAND NATIONAL ROSE SHOW.—It has been proposed to hold a grand National Exhibition of Roses, open to all cultivators in their respective classes, in London, on the 1st of July. Subscriptions are being made in aid of this object, a list of which will shortly be published. Those who desire to aid in this truly noble undertaking may communicate with the Rev. S. R. Hole, Caunton Manor, Newark, Notts.



PAMPAS GRASS.

GYNERIUM ARGENTEUM.

THE PAMPAS GRASS.

(*See Plate.*)

IN consequence of the large amount of interest that has been excited by this gigantic ornamental grass, we have published a figure of it, taken from a fine specimen plant that is growing in the shrubbery of one of our subscribers in Hampshire. The dimensions of the plant, taken last season, were as follows:—Five feet through, and sixteen feet high; the flowering-stems as thick as a finger, and six in number; the leaves measured from six to eight feet long, in a dense tuft, bending gracefully downwards, and waving in the breeze. The flowering-tufts were about eighteen inches long, very silvery and light in appearance.

The Pampas Grass was first made known to botanists by the unfortunate Sello, who discovered it in the year 1820, in the environs of Monte Video. Its introduction to this country dates but a few years back, and was effected through the director of the Botanic Gardens of Glasnevin, Mr. Moore. For the decoration of gardens, the shrubbery, and rockwork, it is one of the most useful plants that have been introduced for some time. In appearance and height it rivals the Bamboo, and we can imagine few things that look better by the side of a piece of water, backed by clumps of dark evergreens, Portugal Laurels, etc. *Gynerium argenteum* covers vast plains, the resort of immense herds of the Quagga and Wild Horse, in the neighbourhood of Buenos Ayres and the northern parts of Patagonia.

* * *

PROGRESS OF THE CARNATION AND PICOTEE, WITH REMARKS ON THEIR MANAGEMENT.

(*Continued from page* 29.)

MR. HOGG, in his treatise, recommends the compost to be made up as follows:—"Take three barrows of lime, one and a half ditto of garden-mould, ten ditto of horse-dung, one ditto of coarse sand; let these be mixed and thrown together in a heap or ridge, and turned two or three times in the winter, particularly in frosty weather, that it may be thoroughly incorporated. On a dry day, towards the end of November, I take a barrow of fresh lime, which, as soon as it is slacked, I strew over it while hot, in turning the heap; this accelerates the rotting of the fibrous parts of the loam, lightens the soil, and destroys the grubs, worms, and slugs. Lime is too well known as a manure to say anything further in its praise here. If there have been much rain during the winter, so that the strength of the compost is reduced, and the salts washed from it, I take about seven pounds of damaged salt and add it to the compost, either dissolved in water or strewed over by the hand. This, from an experience of three years, I have found to be attended with the most beneficial effect upon the future health and vigour of the plants. During very heavy rains, many florists cover their composts with tarpauling or double mats, to prevent the nutritious particles from being washed out; this is also an excellent precaution. If any objection be started that the quantity of dung is too great in proportion to that of the loam, I answer, that such an objection might be well founded, if the compost were to be used immediately on its being mixed together; but as it has to lie six months before it is used, I am decidedly of opinion that the quantity is not more than is necessary, in order to ensure a luxuriant growth and a generous bloom." For flowers that are apt to sport, he lowers the compost, and uses, instead of the above, "three barrows of sound staple loam, two ditto old rotten cow-dung, one ditto horse-dung, a half ditto sand, a half ditto lime-rubbish or old plaster, to be prepared and well incorporated as before." He recommends the same compost as for yellow Picotees.

Our own opinion is, that nothing is so well adapted for the Carnation and Picotee to grow in than good loam, formed by cutting turves from a loamy pasture, three inches thick, piled up in a heap, and allowed to rot together for a year. At the end of the year, these should be cut down perpendicularly in thin slices, and thrown in a heap to rot together again. During this, the worms and grubs, and especially wire-worms, should be picked out; for it is frequently the case that the soil best adapted to the Carnation contains its greatest enemy. Before being used, the soil should be passed through a coarse sieve or screen, and the fibre rubbed through with the soil. The soil in which the plants are bloomed, and that in which they are kept in small pots should be different; for in the latter they are not required to make much progress, and the less they are excited in autumn and winter the better, provided they make steady progress and preserve their health. This can only be secured by abstaining from the use of stable dung, using pure loam, and such decayed vegetable matter as is afforded by the grass naturally growing in the loam when the turves are cut. Neither should the loam be too adhesive, but sufficiently porous to allow the water to percolate freely; should it not be so naturally, a little sand may be used to lighten it. In preparing soil for blooming the plants in, the loam may have a little well-rotted cow-dung added (say one-fifth), or horse-dung, in still smaller quantity, where the former manure is not at hand.

The pots for wintering the plants in may be large sixties or forty-eights, and for blooming them, twelves or sixteens. The grower being provided with these and the compost as recommended, may commence their cultivation with every prospect of good success, by attending to the rules hereafter to be laid down in the proposed treatment for every month in the year, which we shall simplify as much as possible, merely observing that, in all operations directed, the grower should be more or less guided by the state of the weather at the time, with respect to its being seasonable or otherwise.

(*To be continued.*)

WARD'S CASES.

BY FLORISTA.

INHABITANTS of towns and smoky cities, and those who possess but limited gardens, or perhaps no gardens at all, but who love plants and flowers, will find the highest gratification in cultivating a few humble plants in these miniature greenhouses or cases. There are few ornaments for a room that can compete with them in the eyes of all lovers of nature, and to others they have a pleasing effect. *Ferns*, *Lycopods*, *Fly-traps*, *Cactuses*, etc., are here grown in the greatest luxuriance, and, as to trouble, they require very little attention. The ladies (who are among our most devoted gardeners) are extremely in favour of them, and, where they are generally to be found, in the drawing-room, have their management entirely under their control. Having had several under my care ever since they were first found out, I feel myself competent to give some instruction as to their management, and have therefore drawn up the following remarks:—

Wardian Cases may be introduced into the drawing-room with a very pleasing effect, and should be placed near a window. It is quite unnecessary to have them air-tight, as was at first supposed. The case should be so constructed as to allow of the glass being entirely removed, it should also have a door at the side to allow the hand to be introduced when necessary, or to be put open when dew is observed to settle on the interior surface of the glass. They may be made of any size and design to suit the taste; the interior may be laid out with miniature rockwork, and the plants inserted in it will produce a most pleasing effect.

Although in numerous instances no provision is made for the draining away of superfluous water after the occasional necessary irrigation, it will be found highly conducive to the free growth and vigour of the inmates to favour them in this really essential particular. The best drainage which can be used will be found to be sandstone and charcoal, broken into pieces about the size of a marble. These substances absorb and retain for a long period the superfluous moisture, and the roots of the plants, of almost every description, delight in twisting about them, and gathering support from them. The trough, or case, in which the plants are inserted, should be half-filled with this drainage; over the drainage lay a thin stratum of turfy peat and moss; then a compost of fibrous peat and well-decomposed leaf-mould, with about one-quarter of silver or river sand, mixed with small broken sandstone well mixed. This will be found a good soil for almost any plant that will flourish in a Ward's case.

If desired, small rustic pots may be suspended from the top, containing some of the neater growing Lycopods, or when Cacti are desired to be grown in them, they may be placed in the like situation. We do not, however, recommend the admixture of the latter tribe with Ferns and Lycopods, as a much better effect is produced when grown separately; indeed, if the expense is no object, a separate case may be devoted to the growth of Cactuses and Ferns. The difficulty with possessors of these cases is very often the desire of growing everything in them, hence we frequently find the most perfect incongruity in the arrangement of them; plants of larger and more vigorous growth obscuring and overrunning those of more humble and fragile habit. This should by all means be avoided. The amount of gratification to be derived from this mode of cultivating plants will be commensurate with the degree of success realized; therefore, in the construction of the case, regard must be had to the habits of the plants it is desired to grow. If it is intended to have a collection of small plants such as the delicate Ferns, small Mosses, etc., a small glass case, ten inches high, with a flat glass top, will be found sufficient for the purpose.

Among others, the following most attractive plants which will grow well in these cases. Those which may be grown in small cases are marked with an asterisk:—

FERNS.

*Allosaurus Crispus, a very elegant littlo Fern, with parsley-like fronds, growing about four inches high.

*Polypodium dryopteris, bright green and delicate fronds, growing six inches in height.

*Adiantum Capillus Veneris, a very elegant and distinct species; height, six inches.

Scolopendrum vulgare, var. crispum, very distinct in appearance, fronds narrow, eight inches to one foot.

*Grammitis ceterach, fronds dark green above, white beneath, three inches.

Polypodium vulgare, var. Cambricum, a broad-leaved, handsome variety, growing eight inches high.

*Cistopteris fragilis, very delicate, eight inches high.

Athyrium filex fœmina, very elegant, two feet high.

*—————————— var. ramosa, a very distinct and beautiful curled variety of the preceding, growing six inches high.

*Asplenium marinum, glossy,

dense foliage, six to eight inches.

Asplenium trichomanes, narrow fronds and black stalks; height six inches.

——— adiantum nigrum, narrow fronds, six inches to one foot.

Blechnum spicant, elegant and distinct, eight to ten inches.

*Asplenium viride, bright green, very pretty, four inches.

*Hymenophyllum Tunbridgiense and H. Wilsoni, dense moss-like Ferns, three to four inches.

Lastrea oreopteris, a sweet-scented Fern, growing two feet high.

——— rigida, very elegant lance-shaped fronds, eighteen inches.

Aspidium lonchitis, very rigid glossy fronds, one foot.

——— angulare, very pretty and graceful, two to three feet.

*Asplenium ruta-muraria, rue-leaved, pretty, three inches.

*——— septentrionale, neat, three inches.

LYCOPODIUMS AND MOSSES.

L. stoloniferum.
— denticulatum.
— purpureum.
— alpinum.
* L. clavatum.
*— selaginoides.
*— selago.
**Drosera rotundifolia.*

Various species of *Echinocactus*, *Mammillaria*, *Epiphyllum*, *Aloe*, *Cereus*, *Stapelia*, *Cypripedium* *Sarracenia*, *Dionæa muscipula*, *etc.*

◆

ON THE CULTURE OF GESNERIA ZEBRINA.

BY MR. J. PLANT.

OF the many ornamental plants adapted for the conservatory or drawing room, this is one that may rank with the best; possessing beautiful flowers and striking foliage, few make more conspicuous objects. As the month of February is the time for starting the plants, I presume to lay before your readers the course of treatment practised by myself in the hope of its being approved, and believing it to be the duty of all who are interested in the progress of gardening to contribute their mite to the common stock of knowledge.

When the plants are to be re-started into growth at this season, I shake the scaly tubers out of the pots in which they have passed the winter, and insert them in shallow pans with a little fine soil round them and open drainage. I then transfer them to a moist heat, ranging about 65 degrees by day. As soon as they have made shoots three inches in length I pot them off into large-sized, or six-inch pots, four in a pot, with compost made of fibrous peat and turfy loam, equal parts, with sand and rotten cow-dung in small portions, the whole being lumpy, so as to permit a free passage of water, which is of the greatest consequence to the *Gesneria:* a good double handful of crocks at the bottom of the pots must not be forgotten, as helping to the same desirable end. When potted I again place them in heat. If bottom heat can be given them they will make roots fast, and soon fill the pots. I examine the state of the roots from time to time, lifting the ball with care, and as soon as I find the pots well filled with them, I give them a final shift into their blooming pots, which are ten-inch ones. They are next neatly tied out, and removed to a gentle moist heat, where they prosper very well, and come into bloom in September and October. For a succession, plants started in March and April make a grand display in a stove or warm conservatory through the winter. An occasional use of the syringe is of great service to keep the foliage clean and plants healthy.

By this means I have always fine specimens decorated with rich trusses of bloom, and leaves of gigantic size, resembling green velvet embroidered with black, at a time when flowers are so greatly needed.

ON TRAINING AND STANDARD HONEYSUCKLES.

BY CLERICUS.

POSSESSED of such delightful fragrance and elegant climbing habit, this plant is universally admired. In most parts of England, too, the wild Woodbine is found profusely adorning the hedges by road-sides and along retired lanes, where, during a large part of the summer, it enlivens the wayfarer by its loveliness, and regales him, especially in the evening of the day, with its grateful odour.

Possessed of such sterling charms, therefore, it deserves to be cultivated in the gardens of all, and in every variety of form which its nature will allow. As it is exceedingly accommodating with regard to treatment, it seems much to be regretted that, in most instances, it is merely grown in those artificial circumstances where a wall or a trellis, or something equally formal, is afforded for training it over. Supported by a pole, so as to compose a pillar, it is hardly ever to be witnessed; pruned into a dwarf bush, and thus making a fine border shrub, it is still seldomer seen; trailing over rockwork or a rocky bank, I have never yet observed it; nor have I ever noticed it planted thickly as a bush, and forming entangled beds, nor growing amongst Ivy, nor planted extensively to twine round the stems of trees in shrubberies, nor covering bushes of Hawthorn or similar plants in the ruder parts of pleasure-grounds or parks; nor, in more than two or three places, pruned to a standard of four or five feet high, and developing a large half-drooping head, which almost sweeps the lawn on which the specimen stands. And yet, for each and all of these objects, it is peculiarly well adapted, while its treatment, according to these several plans, would in itself give a great and delightful variety to a flower-garden. A short sketch of all these methods may not be unacceptable.

Generally speaking, Honeysuckles are not at all suitable for training on walls. They are chiefly twining plants, and require something to wind and cling around. The Etruscan and yellow-flowered kinds (*Caprifolium etruscum* and *flavum*), with the evergreen sort (*C. sempervirens*), are, however, tolerably fitted for clothing low walls. But they will need much pruning in such situations, at first, to prevent the lower branches from becoming bare, and to induce them to throw out laterals freely. For trellises, of various descriptions, Honeysuckles are much more appropriate. They can be trained over these so as to have almost a natural appearance, and whether the trellis be in the form of an espalier, or an arch over a walk, or a covering to an arbour, or any small erection, they will only need tying to it by some of the main branches, while the other shoots can be wreathed into the trellis. Here, as in the last-named case, much pruning will be wanted for a time, to get the plants into a good lateral and flower-bearing condition. A pretty diversity in training Honeysuckles thus might be obtained by the use of poles, with chains or ropes hanging in a deep curve between them, so as to compose festoons. By fastening two or three main stems along these chains or ropes, and pruning them to give an abundance of laterals, very elegant festoons might be formed in a few years.

Supporting Honeysuckles by poles is much superior to the method of sustaining them by trellises, because more natural and better calculated to show the plants to advantage. Indeed, this is one of the best of all ways of managing them. The poles may be from six to ten feet high, and either single, or in threes joined together at the top, or in threes kept apart by cross-bars. Perhaps the single poles are the most beautiful. A specimen, planted at the base of one of these, may be tied to it, or suffered to twine round it; and as it rises, the leading shoots should now and then be stopped, in order to force them into a lateral growth; for the main beauty of a thing of this sort consists in having the entire pole well clothed with branches and blossoms. If the former are obtained, the latter are nearly sure to follow. Pruned so as to make a dwarf border shrub, the Honeysuckle will add a very agreeable feature to a shrubbery border. It has only to be efficiently cut down while young, and it will soon acquire the habit of making nothing but short blooming shoots; or, should it occasionally send out a long rambling branch, such as it usually climbs with, this must be cut off at once, and its disposition to produce such shoots will in a very short time be checked. It can then be pruned every winter as an ordinary shrub, taking care to remove straggling shoots in the summer when they appear.

For trailing amongst rockwork, or over a rocky slope, Honeysuckles are exceedingly good ornaments. They have a natural propensity to trail; and if the shoots are here and there plunged beneath a small mass of rock, or merely buried in the soil for a few inches of their length, they will thereby gain fresh vigour, and will not too much conceal the bolder outlines of the rockery. Pruning will be as useful in this case as in the others that we have mentioned; for, by shortening the lateral shoots, they will be induced to grow in clusters, when the display of flowers will necessarily be more effective.

Nothing would make a more beautiful bed or mass on a lawn, or in some retired part of a pleasure-garden, than a group of the late-flowering common Honeysuckle. It should be planted about eighteen inches or two feet apart, treated like a low shrub, as already described under that head, and, after the plants have gained some size and strength, a few of the more spreading shoots may be allowed to grow into the other plants, and thus an interwoven mass will speedily be created, which will simply require a little pruning and regulating each winter.

What I mean by planting Honeysuckles amongst Ivy is, where Ivy is used for mantling a building, or a ruin, or rocks, or is permitted to overrun a small tree for the sake of picturesqueness, a few Honeysuckles, if trained up amidst it, would greatly improve and diversify its appearance.

The practice of letting Honeysuckles mount the stems of trees in plantations is pursued already in some gardens. It deserves, however, to be more frequently followed. The trees chosen for the purpose should be principally round the outside of shrubberies, because the Honeysuckle will flourish best where it can get air and light. A small number of trees may always be abandoned to such an object, even should the Honeysuckle strangle them, which it will not inevitably do. With care to keep the plants from being blown away from their support, they will not demand other attention.

Every one who has visited old forests, or forest-like woods, must have been pleased with the aspect of Honeysuckles growing over bushes of Hawthorn, the common Sloe, etc., in such places. To obtain these features in the rougher portions of pleasure-grounds and parks is surely worth attempting; and this may be done by using bushes of the Hawthorn as supports for the Honeysuckle. By planting the latter at the bottom of Hawthorn bushes that are three or four feet in height, it will, if left to itself, give a character of the most picturesque beauty in three or four years.

There is only one other method of treating the Honeysuckle which I shall at present specify, and that is the plan of training it to a standard of from four to six feet high. This is a mode to which I would afford some prominence, in connection with a very similar way of managing the common Ivy. As a companion plant to a standard Ivy, a standard Honeysuckle would be an extremely desirable object. They are both produced by the same means. Pruning to a single stem, and when this has gained the required height, stopping it, and producing a head of branches, is all the preparation needful; and a trifling subsequent pruning will carry the plants forward without further trouble. To establish a Honeysuckle as a standard, it should have a stake to uphold the main stem; and as it will be advisable to continue this after the head is formed, lest a strong current of wind should overset and break it, the stake should be an iron one, which will also contribute to neatness. The plant looks best on a lawn that is either flat or sloping, and the branches may, when the head is duly formed, be left almost to sweep the grass. If the plant be on a slope, the longest branches ought to be left on the lowest side, as this will create a greater elegance from the valley below. Perhaps the *C. Periclymenum serotinum*, or the late-flowering variety of the Woodbine, is most to be preferred for a standard. There is little choice necessary, however, as most of the Caprifoliums would answer the design, and *C. sempervirens* would probably be especially beautiful.

A FEW SELECT ANNUALS, ETC.

THE following new and select annuals, perennials, etc., are now being sent out by the various seedsmen, and comprise some very choice things:—

Acroclinium roseum.—This annual is now becoming generally known, and is a great favourite with every one, its beautiful bright rose-coloured, everlasting flowers, make a fine contrast with the yellow and white *Helichrysums*, *Rhodanthe Manglesii*, etc. It does well in a mixture of peat and loam; if sown before April, a little protection is necessary.

Chrysostemma tripteris.—A fine perennial, with large flowers resembling those of a Coreopsis, yellow, with a dark crimson-purple centre; blooming freely from July to the end of October.

Clarkia pulchella marginata—Resembles *C. pulchella* in the ground colour, but is beautifully margined with white. Sown in patches alternately with *pulchella* and *pulchella alba*, it produces a very pretty effect.

Convolvulus tricolor-splendens.—A new variety raised by Mr. Burridge, of Colchester. Its flowers are considerably larger than those of the common *C. mintr*, and of a very rich purple, quite distinct from that species. It is also a free bloomer, continuing in flower till late in autumn.

Datura Wrightii.—A fine perennial from California, growing from four to five feet high. Its flowers are tubular, six inches long, and four or five across the mouth, pure white, shading into blush at the margin. It is nearly hardy, and may be treated as a half-hardy annual, as it blooms from seed the first year. The roots, which are very fleshy, may be covered with a little litter in winter, or taken up and stored in a dry place, secure from frost. This plant should be grown in every garden.

Dianthus Chinensis nanus.—A delightful Indian Pink, growing very dwarf, not exceeding three or four inches, double, and of as many tints as the common variety.

Dianthus Parsonii.—The flowers are of extra large size and very double, constituting it a very desirable plant, blooming from July to October.

Ipomæa sinuata.—Although not so striking for its blossoms, which are white, the foliage is very distinct, being digitately and narrowly lobed; it requires a warm greenhouse, or a place in summer against a south wall.

Lupinus hybridus insignis.—Very ornamental; flowers in long spikes, of dark crimson purple colour.

Lupinus nanus albus.—Affords a very pleasing contrast with the dwarf blue variety.

Lupinus Menziesii.—This was noticed by us in a recent number. Its blossoms are borne in very long spikes, clear yellow in colour, and of a distinct habit. It is a native of Oregon, and has been sent out by Mr. Thompson, of Ipswich.

Lupinus pilosus albus.—A fine variety of the rose Lupine. One great recommendation is, that it preserves the purity of the white to the last, unlike most other white varieties of this tribe, that change to blush or various shades of brown. It is a dwarf and compact plant, and looks well in a mass.

Oxalis Tropæoloides.—A very dwarf and interesting little plant, averaging about two inches high; the stems are creeping, and root at every joint, so that it makes a very close compact mass, with neat bright yellow flowers; requires protection in the winter.

Pardanthus Sinensis.—Somewhat like an Iris, the blossoms orange marbled with red, and very pretty. In winter a slight protection is desirable.

Pharbitis hederacea superba.—This pretty dwarf climber is quite hardy, the flowers pure azure blue, with a wide margin of white. This will become a great favourite.

Phormium tenax, the New Zealand Flax plant is now known to be hardy in this country, although in some localities the young plants are all the better for a little protection. The flowers are yellow, something like those of the Day Lily in appearance, but smaller, yellow; the leaves are from six to eight feet long, and the flower-stem frequently nine feet high. It is worthy of a place wherever it can be grown.

Phygelius Capensis.—A new perennial from the Cape of Hope, very attractive, and of neat, compact habit. The blossoms are tubular and rather curved, nearly scarlet outside and yellow within. Its height averages about two feet, and it has hitherto proved itself hardy. It likes a dry soil.

Silene pseudo-atocion.—An early-blooming annual, not growing more than fifteen inches high, crowded with small bright rose-coloured blossoms; a native of the northern parts of Africa, and introduced many years ago, but apparently lost, and now brought into notice again by Messrs. Backhouse, of York.

Statice Banduelli.—Is a biennial well worthy of cultivation, being one of the most attractive of this interesting tribe. The flowers are of a bright clear yellow; it is considered at present to be half-hardy.

Tropæolum Melvillei.—A cross between *T. majus* and the common "Canary flower," *T. peregrinus*, raised by Mr. Melville, gardener to the Earl of Roseberry, and sent out by Mr. Thompson, of Ipswich, who purchased it of the raiser. It is very well worth growing for a trellis. Flowers yellowish orange striped with scarlet; the leaves are quite distinct, being deeply lobed.

Tropæolum Schulitzei.—Is a variety from *T. Lobbianum*, and bears flowers of a bright scarlet, almost rivalling those of a scarlet Geranium. It grows well in poor soil, and is suitable for pots. A very desirable thing.

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REVIEW.

The Culture of the Chrysanthemum as practised in the Temple Gardens, etc. By SAMUEL BROOME, F.H.S., Gardener to the Hon. Society of the Inner Temple. Crown 8vo, pp. 58. Sold at the Lodge, Inner Temple Gardens. Price 6*d*.

THE CHRYSANTHEMUM has been Mr. Broome's particular study for many years—further, it has been his mainstay in making the retired and quiet grounds committed to his charge in the midst of our great metropolis what they have become, namely, a scene of almost unrivalled beauty and gaiety during the dullest season of the year; for, as it fortunately happens, this flower is one that will do well in the smoke of cities and towns if properly managed. In proof of what may be effected with this favourite flower we need only point to the fact, that, to see the beautiful show in the Temple Gardens, a vast number of visitors now annually throng that generally quiet spot—a spot rendered classic by the memories of Johnson, Goldsmith, and other worthies who delighted to frequent it at a time when London was not what it now is, but when the Temple was within almost a stone's-throw of the country, and whose reins of fancy were never let loose to a scene of half the beauty that—thanks to Mr. Broome, may be there witnessed every autumn. We are therefore glad to see this treatise on the culture of his favourite flower, than whom no one is better able to write than the author. Of the little book itself we must say a few words: in the moderate compass of fifty-eight pages we have sound information on the culture of each particular class, and for particular purposes, as for the border, for exhibition, etc., and extensive lists of flowers properly classified. We are tempted to give the following extract on the *Management of Large Flowered Chrysanthemums for Exhibition*:—

> "For this purpose *cuttings* should be taken in the beginning of November from the suckers, or from the laterals of the flowering stems; the latter, perhaps, are preferable, as they are not likely to throw up suckers, and thereby expend that nourishment which would otherwise go to the flower; nor are they so apt to give blooms with large centres or 'seedy eyes,' as they are termed, as those plants which are grown from the suckers themselves. These should be rooted in small pots, and placed in a cold frame for protection through the winter; shifted, as soon as the roots are fairly formed, into larger pots; and kept on shifting from stage to stage until they are ultimately settled in their blooming pots, which should not be less than 'number sixteens,' and in the bottoms of which, to the depth of four or five inches, should be put layers of broken potsherds or pounded oyster-shells to insure good drainage. Care should be taken not to allow the fibres to rise round the pots too much before shifting, as this very much injures the plants, and their progress will be materially retarded if they are not repotted at the proper time; moreover, the fibres must be as little disarranged as possible in the operation.
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> "In April and May a south aspect is desirable for the plants, but from the middle of June to the middle of August they should be removed to a shady spot, where they will only get the morning sun until eleven. Manure-water of a weak and cooling nature should be used in the former months, but its strength should be afterwards increased until the flower bud begins to give indications of colour; in no case, however, should it be given until the plant has been previously well soaked with plain water. When the crown divides itself, take off all laterals; and, when the flower buds are well grown, disbud or cut out all but the brightest and most shining, leaving but one to each stem. Should any of the blooms on breaking show an eye, it is a sign that the plant has been overdone with kindness. If the early blooms are too soon for the late ones, they may be retarded for a week or nine days, and their back petals be preserved from decay, by gathering them into a ball and tying them up with some wadding, and then putting them into a bag made up like a sugar paper. Another plan is to pass the bloom through a flower-pot, of which the bottom has been previously chipped out, and to cover it with a piece of glass. This has the effect of not only preserving the back petals, but of bringing the centre ones up to the light. In fact, it will make an incurved flower of a reflexed one.
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> "No wet should be allowed to get to the blossoms after they have once burst; indeed, the plants may, with propriety, be kept in a shed for about a week, and treated but sparingly with water until the day before the flowers are cut for show."

At page 48, we have an account of such plants as will grow well in the smoke of London and large towns, which is well worth being transcribed:—

> "Although so many thousand Chrysanthemums are grown in the Temple Gardens annually for autumnal flowering, still they are not entirely devoted to the culture of this plant; there is a very fair display throughout the year of other hardy flowers which will thrive in London smoke, and may be grown with success in most of the squares and small gardens in large cities and towns. As a winter flower, the Christmas Rose

(*Helleborus niger*) does very well, Snowdrops too bloom very freely.—Next comes the Crocus of different colours; that does remarkably well, and if planted in October, in beds or good-sized patches, will in March and April make quite a show, and forms a pleasing mixture with the common Primrose. But you must guard against the impudent town sparrows; they are very destructive, and will pick off every flower as soon as it comes out. To prevent this, put in a few short sticks round the plants, and wind on the top some worsted; this frightens them, as they think it is a trap.—In the middle of February, sow round the Crocuses a good quantity of Virginian Stock, purple and white alternately; the leaf of the Crocus shelters the young Stock from the frost and cold March winds, and, when the Crocus has done blooming, either cut the leaves off, or twist them round and give them a tie, to allow the Virginian Stock fair play. This comes in succession to the Crocus, and, when sown in large patches or beds, has a very pretty effect.—I generally plant a great quantity of the common Wallflower, choosing the darkest varieties. These flower a long time, and smell very sweet, but should be planted very deep, and require a great quantity of water, or they soon flag.—The Daffodil and Narcissus do very well.—Next come the White Candytuft (*Iberis sempervirens*) and the Yellow Alyssum, which bloom at the same time. These I strike from cuttings in the summer, and keep in a cold frame all the winter.—Next come the *Iris germanica* and the Rocket.—Daisies and Heartsease do very well and flower a long time.

"The Calceolaria does exceedingly well, and flowers all the summer; cuttings of these should be put in a cold frame in October, and merely require the frost to be kept from them. You can put the cuttings in the bed under the frame or in pots, whichever may be most convenient, and pot them off in the latter end of February into No. 60 pots, till they are established for turning out in the summer. When it is very hot, throw round the roots a little mulch or mould to keep their flowers from drooping.—Intermediate Stocks do very well, and flower all the summer. Then sow them in September, under a hand-glass. When old enough, prick out three or four plants in No. 48 pots in a compost of loam and a little rotten dung, taking care they do not get too much wet. In November put them in cold frames for the winter, never watering except they flag; and plant out in February, as they will bear a little frost.

"Scarlet Geraniums do very well. These I keep through the winter, some in cold frames, others in a house; but they must all be kept very dry, or they will damp off. To make sure of my stock from year to year, I plunge them all in the ground in pots, which checks their growth, and causes them to throw more bloom; and by cutting them in well I also keep the old plants for another year. As I have not the convenience to keep many cuttings through the winter, I put in a few every year to keep up my stock, which I take off in August to get well rooted, and to stand through the winter.—The *Ageratum mexicanum* does very well. I put in cuttings in October, which I manage to keep through the winter. You may also put in cuttings of this in the spring, which will flower very early.—Verbenas flower very well all the summer, but are difficult to keep through the winter, as they damp off.—The dark Clove Carnation is very hardy, and flowers beautifully. These I propagate by hundreds in the autumn; putting some in cold frames, and letting others remain out of doors; but to these the sparrows are very destructive, serving them like the Crocuses. The Sweet William, *Lupinus polyphyllus*, Scabiosa, Antirrhinum, Polyanthus, Foxglove, and Lily of the Valley do remarkably well.—The Fuchsia, if planted in a cold shady place in summer, flowers tolerably well, but must be attended to in watering, or the flower drops before opening.—The Mimulus is a famous town flower, but requires plenty of water.—Some of the hardy Phloxes do pretty well.—The double Rocket flowers freely, and if the first bloom is taken off when faded, the plant will bloom again as freely as ever. I would recommend nearly all the common hardy annuals, especially the Branching Larkspur, the *Phlox Drummondii*, *Lupinus nanus*, *Coreopsis*, etc.

"Balsams will do very well if planted in rich mould, and abundantly supplied with water. Have nothing to do with tender annuals; they are poor sickly-looking plants for town gardening.—The common Pinks do exceedingly well.—The Willow herb (*Epilobium angustifolium*) is a very showy common flower, and will grow anywhere.—Mignonette does well.

"There are numbers of *herbaceous plants* that do very well, such as the Michaelmas Daisy (*Aster*), double Sunflower, *Achillea lingulata*, *Dracocephalum speciosum*, Sea Lavender (*Statice latifolia*)—in fact all hardy plants of this class.—Hollyhocks make a tolerably good show, but are liable to damp off in the winter.—Dahlias do exceedingly well if well supplied with water, and carefully thinned as they advance in size. They ought to be planted very early in the spring to get an early bloom. As they are not required in September, the Chrysanthemums taking their place, I generally cut them down in this month. You ought to be particular in your selections not to purchase hard-eyed ones, as the ground becomes so hot and dry at the close of summer that they never bloom fully out. Amongst the best are Beauty of the Grove, Richard Cobden, King of Yellows, Mr. Glenny, Beeswing, Brilliant, Empress, Annie Salter, Beauty of Slough, Fearless, and other free bloomers.

"Respecting *shrubs* and *deciduous plants*, few of these do any good. The Lilac blooms very scantily, but does well for a screen, as it shows a little green in summer.—The *Aucuba japonica* answers in sheltered places.—The Box, Holly, and Privet thrive for two or three years.—Rhododendrons flower freely for a season, with plenty of water.—The Hibiscus Rose, or *Althæa frutex*, grows and flowers remarkably well.—The *Daphne Mezereon* does very well and flowers freely, both white and pink.—The Dwarf Roses, such as Rose de Meaux, Cabbage, Provence, Maiden Blush, York and Lancaster, are now doing tolerably well in these gardens, considering the murky atmosphere they grow in. I tried some dwarf standards, and they more than answered my expectation, as, after planting them in good maiden loam and attending to their watering, some bloomed all the season. Madame Laffay, Jacques Lafitte, Mrs. Elliot, Géant des Batailles, William Jesse, Duc d'Aumale, and several others, give great satisfaction; but of course they require attention in taking off the seed bud and in watering. It is something to have a Rose at all in this smoky town.—The Clematis does not do amiss.

"As respects *forest trees*, nothing does so well as the Oriental plane; you may train it to any habit you please by pruning, and the more confined it is the better it does. The Lime trees do very badly, but the Elm and Thorn tolerably well. The Lombardy Poplar is a capital tree for London. Irish Ivy does very well where you want to cover a wall.

"I believe these are all I can recommend for town gardens at present; still there are many things that I have not tried, and which may succeed, but I can only enumerate what I have proved to answer."

There remains nothing further for us to say, than that the treatise of Mr. Broome is the best that has yet issued from the press on this subject; and is, moreover, well worthy the attention of every one who grows this popular flower. We heartily commend it.

NOTES ON NEW AND SELECT PLANTS.

DASYLIRIUM ACROTRICHUM. Nat. Ord. *Asparagineæ.*—The habit of this plant much resembles that of a Yucca, with a solitary central stem that is sent up occasionally like a large head of Asparagus. During the past summer two species of this genus sent up their flower stalks at Kew, one of which, the present, elevated its long spike to the glass sashes of the succulent house. All the known species are natives of Mexico, where, along with Cactuses they present a curious appearance in the scenery of the mountainous districts of that remarkable country. (*Bot. Mag.*, 5030.)

19. Æschynanthus tricolor. Nat. Ord. *Cyrtandraceæ.*—A very handsome species from Borneo. The flowers are rather small, about an inch and a-half long, by an inch across the mouth, bright scarlet, streaked with clear yellow and black, the throat open and displaying the lobes of the corolla well, the tube is short and curved; calyx shallow, purple or copper coloured. The richly ornamental blossoms are borne in loose umbels of few flowers; the leaves are about an inch long, ovate, of a lively green, slightly downy. The entire plant rather small and well-suited for suspending in baskets in the moist stove.

20. Cattleya luteola. Nat. Ord. *Orchideæ.*—A pretty, dwarf growing *Cattleya* from Brazil; its blossoms are about two inches and a-half across, of a pale lemon yellow, the lip being blotched with a delicate spot of orange at the extremity, where it is fringed. The leaves are about three inches long, thick and succulent. Well deserving of cultivation. (*Bot. Mag.*, 5023.)

21. Colletia cruciata. Nat. Ord. *Rhamneæ.*—A South American shrub, growing from three to four feet high, much branched, and presenting a curious appearance. It may be considered as a shrub, having the branches covered with a mass of broad spines instead of leaves, and bearing many small clusters of little cream-coloured cylindrical flowers. The true leaves are exceedingly small and few in number. (*Bot. Mag.*, 5033.)

22. Gaultheria discolor. Nat. Ord. *Ericeæ*—Discovered by Mr. Booth in the Bhotan country, where it grows on the lofty hills in a temperate atmosphere. It is a very neat, pretty little species, with small cylindrical flowers, about a third of an inch long, crowded together, white, with the five lobes bright pink. Leaves about an inch long, ovate-lanceolate, remotely serrated, dark green above and silvery white beneath; footstalks short. It may be readily known from any other of the same genus by the beautiful silvery under surface of its foliage. (*Bot. Mag.*, 5034.)

23. Pilumna fragrans. Nat. Ord. *Orchideæ.* Syn. *Trichopilia albida.*—A charming sweet-scented Orchid, said to be from Papayan, with large flowers, the sepals and petals measuring nearly four inches across, of a pale yellowish green, narrow and somewhat twisting; the labellum pure white, with a small spot of orange at the base. The pseudo-bulbs are from four to six inches in length, and the leaves nearly double as much. This species is worthy of a place in every collection. (*Bot. Mag.*, 5035.)

24. Amygdalus persica, flore pleno. Nat. Ord. *Rosaceæ.*—A semi-double Peach from China, with very handsome dark crimson flowers, perfectly hardy. This plant has the singular predisposition to produce two fruit for each single flower, and sometimes three. Mr. Fortune introduced it a few years back.

25. Oncidium tenue. Nat. Ord. *Orchideæ.*—An Orchid of but little beauty, but remarkable for its extremely thin pseudo-bulbs; the flowers are small, yellow mottled with brown. A native of Guatemala, sent over by Mr. Hartweg.

26. **Citrus Japonica.** Nat. Ord. *Aurantiaceæ.*—This is the "Kum-quat" of the Chinese gardeners, recently introduced by Mr. Fortune. Although long known to botanists by dried specimens and description, it may now be seen in the Horticultural Society's garden. In appearance it resembles a small-flowered dwarf Orange-tree, but with narrower leaves; the fruit is about the size of a gooseberry, has a very acid pulp, and will probably prove useful for preserving; the rind is very fragrant when cut. Mr. Fortune says—"This species was one of the plants which Mr. Reeves recommended me to send home to the Horticultural Society. In the south of China, great quantities of it are grown in pots; and hence it is met with, as a common plant, in the well-known nursery gardens at Fa-tee. It is, however, evidently of a more northern origin; for I met with numerous groves of it on the island of Chusan, and elsewhere in that part of China, where it grew in far greater perfection than it does about Canton. It seems also to be largely cultivated in Japan, where it has been seen and described by Japanese travellers, such as Thunberg and Siebold. The Kum-quat groves of Chusan are formed on the sides of the lower hills, in those situations where the Tea-shrub (*Thea viridis*) flourishes. The plants are arranged in rows, about four feet apart, and do not attain to a larger size than about six feet in height; from three to six feet is the size which they are usually met with. A small kind of Orange is also found in these groves; but good Oranges, such as those known in the south as *Mandarins* and *Coolies*, are entirely unknown; indeed, the Chusan winters would be far too cold for them. This shows, therefore, that the Kum-quat is of a much hardier nature than any of the plants belonging to the Orange tribe with which we are acquainted in gardens. The fruit ripens late in the autumn, being then about the size of a large oval gooseberry, having a sweet rind and a sharp acid pulp. It is largely used by the Chinese as a preserve; and very frequently finds its way to England as presents to those who have friends in China. Preserved in sugar, according to the Chinese method, it is excellent. In China, the Kum-quat is propagated by grafting on a prickly wild species of Citrus, which seems of a more hardy nature than the Kum-quat itself. This fact should be kept in mind when the plant is increased in this country; otherwise we shall have a comparatively hardy plant growing on a tender one. We have no experience yet as to the fitness of this plant for our climate; but, if not quite hardy about London, it is likely to prove so in such counties as Cornwall and Devonshire, or in the south of Ireland. It is well worth a trial in those districts; for if it would succeed as it does in the island of Chusan, it would be a striking and beautiful object. The Kum-quat groves on that island were amongst the prettiest sights which came under my notice, particularly when the fruit was ripe, hanging in profusion over the bushes, and contrasting so well with the clear green foliage."

QUESTIONS, ANSWERS, AND REMARKS.

Plan for Heating a Pit, etc.—I think of trying your correspondent R. T. W. T.'s plan (see January number), for excluding frost from a small pit; will you, therefore, kindly answer the following questions:—Could not the flange or opening be at the side instead of the top, and an opening to it through a small door in the side of the pit? The wicks could then be lit without opening the pit, and letting cold air in. Would it be better to let the escape pipe go further round the pit. Also would there be any fear of its setting fire to a frame if placed in one? When is the proper time to take *Solanum crispum* cuttings, and how? Please help me, and oblige—*A Subscriber*. —**Reply by R. T. W. T.**—There could be no objection to your Subscriber's alteration, provided the door were made to shut tightly, so as to prevent any fumes getting into the pit; a lid that fits on in the way I have described, with a rim, generally fits closer than a door, but I see no reason why, with a little care, such a door may not be made by your correspondent. As to the pipe being carried further round the pit, I do not think any material benefit would accrue, as the air that issues from the end of my pipe is only perceptibly warm; the principal source of heat consists in that which is radiated from the iron plate above the wicks. As to any danger of setting fire to the pit, I see not the least fear of any such catastrophe.—[*Solanum crispum* will propagate readily by cuttings, placed in sand, and covered with a bell-glass. Take them off when the buds are just beginning to push, close under a joint.—Ed.]

The Ranunculus in Pots.—Those whose love of this flower would lead them to desire it as an ornament in the dwelling-house, may grow a few in pots. The strong-growing sorts will in this way produce fine blossoms, though not in general fit for exhibition. Plant two or three roots in a seven-inch pot, in such soil as is directed for sowing seed. If *early* flowers are wanted, plant in October, and plunge in ashes or sawdust in a cold frame; if otherwise, plant in February, and plunge the pots to the rim in a warm border. Shortly before flowering, the pots may be taken up, cleaned, and placed in a situation sheltered from the mid-day sun. The longevity of the Ranunculus has been variously stated. No doubt the same variety may be perpetuated for about a century. Many of the varieties standing high in the esteem of florists fifty years ago are fast declining in numbers and energy; they now bloom less frequently, or produce smaller blossoms; the cultivation of such will, therefore, be with propriety abandoned as seedlings of improved quality and vigour are generated. Roots retain their vitality for two years, but are weakened if left out of ground for a season.—*Tyso on the Ranunculus.*

Shrubs for a North Wall.—In reply to the inquiry of *J. S.*, *Lancaster*, I beg to say that I have found the old China Rose flourish and flower abundantly on a cold north wall, reaching twenty feet high. The yellow Jasmine and the white one also were vigorous, the small-leaved variegated Ivy attached itself readily to the wall, and I guess the *Cotoneaster microphylla* would succeed well. For narrow borders, all the double Primroses, Polyanthuses, Sweet Williams, Hepaticas, etc., and especially Aconites, bloom in perfection and remain long in beauty; and such hardy annuals as Virginian Stock and generally double Wallflowers, but not Brompton Stocks; no doubt many other flowers would bear the situation. I have here (Bath) extremely fine Gooseberries trained to a north wall, and find Red Currants ripen well, though late; if netted, however, they preserve the fruit good till October.—*Wilts.*

Henderson's Patent Brooms.—This useful invention may be seen at the Crystal Palace, and in use at Kew Gardens. Some of these brooms are flat, others round, etc., and are adapted to all purposes to which a broom can be applied. They are light, and consequently a workman is able to perform a much larger amount of work with them than with any other implement of the kind. As they may be renewed by inserting new twigs, cocoa-nut fibre, or whale-bone, which costs a trifle, they are economical in working, and durable in make; all that is necessary to be done in filling them is to loosen the screws, take out the old material and replace it with the new. Large numbers have been disposed of to some of the chief Government establishments, and for the gardens of many of the nobility and gentry. Dr. Lindley explained them at the recent meeting of the Horticultural Society.

HARDY EVERGREEN BERBERRIES.—Any one desirous of planting a select shrubbery should direct his attention to this fine family, from which he might select a few sorts that would make a miniature plantation of the most interesting and beautiful character; the tribe does not appear to have received that attention it properly merits, for what can be more elegant than a good sized plant of *Berberis Darwinii* or *B. Wallichiana* in full bloom, looking indeed like a "burning bush;" it is true these are two kinds that have not been introduced many years, nevertheless there are others almost as fine, that have been on our hands for a longer period, and yet are seen too seldom. I have made out a short descriptive list of some of the real good things in this line that may be of service to some of your subscribers, if you consider it useful it is at your disposal for a spare corner of your valuable Magazine.

Berberis actinacantha, a compact bushy shrub, very free blooming, growing three feet high; foliage neat, and flowers small though numerous. From Valparaiso, in Chili.

B. Auhuracensis, the blossoms are in drooping racemes, of a deeper yellow than most of the others. From New Grenada, where it grows on snowy ranges, at an elevation of nine thousand feet.

B. aquifolium, this is the well-known common evergreen Berberis now extensively grown, and a very useful as well as ornamental thing it is, and on that account not to be omitted from any collection. A native of North America.

B. aristata, a very fine species from Nepaul, the flowers clear golden yellow, in long panicled racemes; the berries are bright red and very ornamental, remaining on the bushes till Christmas.

B. asiaticus, a rapid growing kind, and one that makes a nice standard, in which state it is very ornamental; flowers clear yellow, produced in abundance.

B. Bealii, a very fine plant, from the northern provinces of China, whence it was sent by Mr. Fortune to Messrs. Standish and Noble; it is a profuse flowerer, and very ornamental foliage, but at present rather dear.

B. Darwinii, this is, in my opinion, the best of the Berberries that has yet been brought into cultivation. It is exceedingly profuse in flowering, its blossoms are in close racemes, of a deep golden yellow; and as it will attain a considerable size, from five to six feet, it is one of the most ornamental shrubs we have, not only on account of its flowers, but also of neat foliage. Mr. Lobb introduced it from the Island of Chiloe, where it is found as well as on the main land of Patagonia, as far as Terra del Fuego.

B. dealbata, a strong growing kind, with light yellow flowers, and foliage of a pale green beneath, giving it a whitened appearance.

B. empetrifolia, a Patagonian species, dwarf and trailing. Suitable for the foreground of a shrubbery.

B. Fortuni, a tall, upright plant from China, of rather naked habit, from being but thinly clothed with leaves; it is, however, distinct in a collection of this pretty tribe.

B. ilicifolia, another of the best species, but scarce at present. The blossoms are of a large size, and rich deep orange colour, the berries of a fine steel blue; the foliage is large and of a deep glossy green. It is from Terra del Fuego, and is said to reach a height of eight or nine feet.

B. Nepalensis, well worthy a place in every shrubbery; the flowers are produced in upright clusters, of a fine orange yellow tint; its berries are very handsome, being of a dark blue colour. From the north of India.

B. trifoliata, a pretty, slender, low-spreading plant, with deep blue green leaves, which are its chief attraction. A Mexican species, growing three or four feet.

B. trifurca, also remarkable for its foliage, which is strong and of leathery substance, with long spines at the extremity of the leaf. Another of the Berberries introduced by Mr. Fortune from China, and at present rather dear. When the price falls it will be grown more extensively.

B. umbellata. Very pretty in consequence of its graceful habit, growing four feet high, and flowering in long drooping racemes; berries purple. From the north of India.

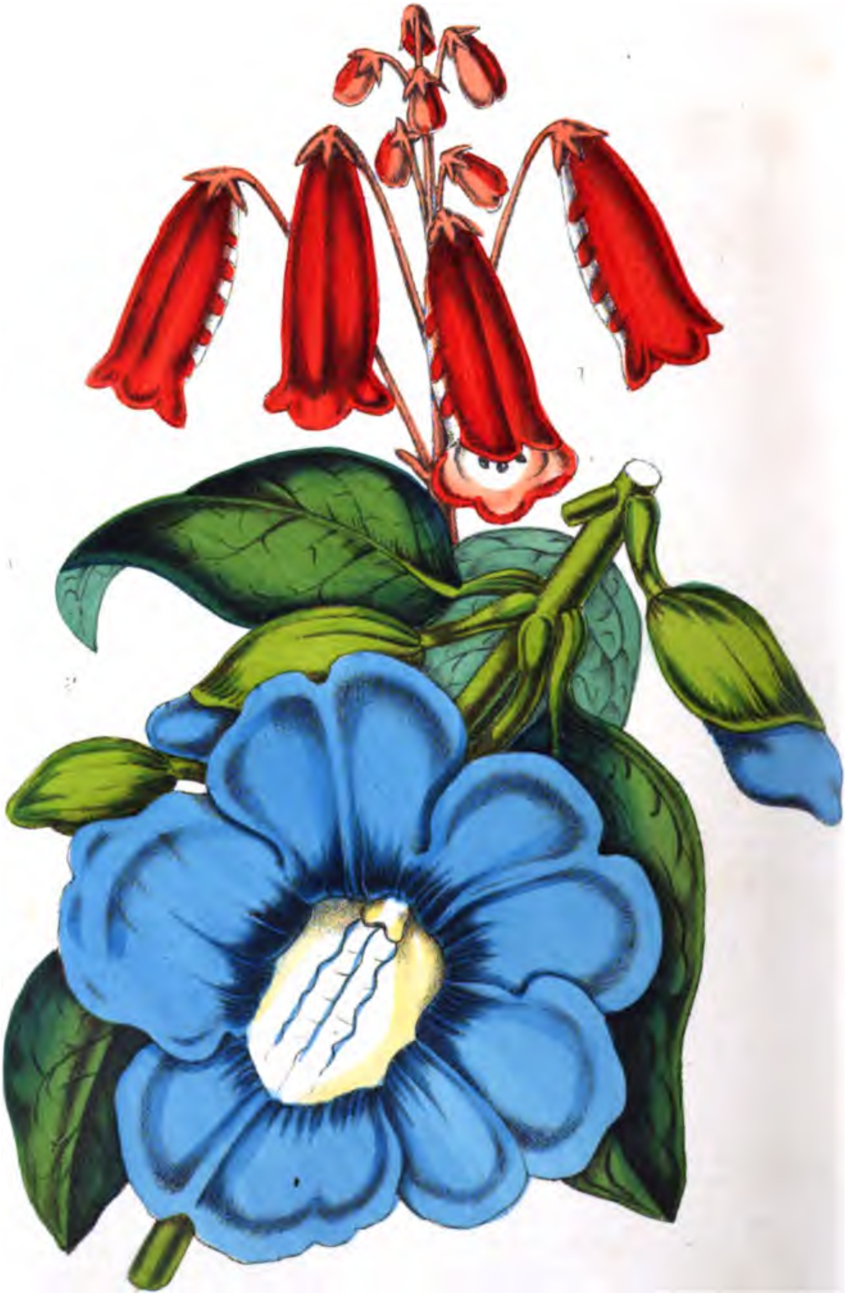
B. Wallichiana, almost equal in value to *B. Darwinii* as an ornamental shrub; it is said to attain ten feet in height. The flowers are very distinct in appearance, being of a pale or sulphur-yellow tint, and loose in form; they are produced when the plant is not more than eight or ten inches high; the foliage is glossy, and very neatly cut, resembling closely that of *ilicifolia*. This, and *B. Darwinii* should be grown by every one who can afford space for them in even the most limited grounds. From Nepaul and Java.—*W. L.*

Horticultural Society's Meeting, Feb. 2.—The Hon. and Rev. L. Vernon Harcourt in the chair. Nineteen new fellows were elected, and numerous plants, fruits, implements, etc., exhibited. Of Camellias, for which special prizes were awarded on this occasion, E. A. Brande, Esq., F.H.S., Sulhamstead House, Turnham Green, sent a group of six plants, chiefly standards, one or two of them from eight to ten feet in height, and all well flowered and handsome. Though none of them were new, that least known among them was perhaps Mathotiana, a large deep crimson kind, which, within the last few years, has been gradually making its way, and deservedly, into most collections. The last-named variety also came from Messrs. Chandler, who likewise contributed Saccoi nova, a pale rose-coloured variety, and a neat small white kind striped with pink, called Jubilee. From Mr. Glendinning, of the Chiswick Nursery, came Targioni, a little known white sort striped with pink, and two extremely beautiful new kinds lately introduced from China by Mr. Fortune. Of these one, which has been named Princess Frederick William, had a white ground-colour, prettily striped and mottled with rose; the other was called Cup of Beauty, and certainly it would be difficult to find anything in its way more handsome than it was. Its flowers are large, gracefully incurved, and pure white, with the exception of a faint, narrow pink streak, which ran down the middle of one or two of the petals. Both varieties must be regarded as valuable acquisitions, and cannot fail to become general favourites. The only collection of Hyacinths exhibited came from Mr. Cutbush, of Highgate. The sorts shown were Prince Frederick, a double pale blue kind; Norma, single delicate pink; Tour d'Auvergne, double white; Baron Van Tuyll, single, porcelain blue; Prince Albert, a single, nearly black sort; Mrs. Beecher Stowe, single rose, with the petals faintly edged with white; William the First, single, deep blue; Anna Maria, double cream; Grand Vedette, single, large flowered, pale blue; Voltaire, single, white; Orondates, single, pale blue; and Pyrene, double, white. Of miscellaneous plants, Messrs. Jackson of Kingston, sent an interesting collection, in which were Epacrises, two well-grown specimens of Chinese Primroses, viz., the double white and double lilac, and two Orchids, one the East Indian Calanthe curculigoides, with a fine spike of pale salmon flowers, a colour rare among Orchids; the other, the pretty Japanese Dendrobium moniliforme. Messrs. E. G. Henderson, of the Wellington Road, sent a well-flowered plant of Cyclamen Atkinsi, a now pretty well known hybrid, remarkable among other things for being exactly intermediate between two parents, persicum and Coum, reported to be hardy; from the same firm also came a plant and cut flowers of Monochætum ensiferum, a profuse-blooming and very handsome rosy-flowered greenhouse plant, whose merits are now beginning to be universally recognized. It was introduced from the mountains of Columbia by Mr. Linden, a great Belgian collector of such plants. Some well-grown fruit and vegetables were also exhibited. Of miscellaneous articles were specimens of Mr. Henderson's patent broom-heads, which excited considerable interest; a new hot-water table apparatus for a small greenhouse; specimens of garden-pots, made of porous clay that burns of a pale stone colour.

Linnean Society's Meeting, Feb. 4.—F. Booth, Esq., M.D., Vice-President, in the chair. The following paper was read:—"Extract from a letter from Mr. Barter on the Niger expedition, dated Rabba, Sept. 29, 1857," addressed to Professor Bentley. Mr. Barter describes the health of his party as not being so satisfactory as could be wished. Fever had appeared after they had been about four weeks on the river (Kworra), all his Europeans, with one exception, being attacked. His own attack had been trifling, but followed by a weakness not to be anticipated from so slight an indisposition. Of the original number of Europeans belonging to the expedition, one only, the mate, a strong, healthy-looking man, had died. Both before and since his attack of fever, Mr. Barter states he had enjoyed uninterrupted health, though spending much time on shore, and necessarily a good deal exposed to sun, rain, and malarious influences. Quinine had been taken daily, and no doubt modified the fever attacks, but singularly enough the only European on board who had from the first refused to take it had escaped the fever. Mr. Barter mentions that the numbered list of his collection of plants now reaches to 1800 species, gathered on the coast and in the river, besides various specimens of wood, fruits, etc. In an overcrowded steamer, however, he found many inconveniences in preserving his plants, damp below, and violent rains and wind tornados on deck, sometimes destroying the result of the labour of weeks. In the lower part of the river, extending some distance beyond Abo, a rich vegetation was met with, Oil and Wine Palms abounding, and lofty forest trees growing together so thickly at their summits, that the light was almost excluded from below. The trees overhanging the water were loaded with Orchideæ, principally of the Angræcum and Bolbophyllum families. Ferns as epiphytes, were also abundant, Platycerium Stemmaria growing on almost every tree. Further up the river, the country became more picturesque with hills and low mountains, and there the extensive forests disappeared, the air became drier, the Wine Palm was replaced by the Fan Palm, the Oil Palms though still abundant were less luxuriant, and the huge Bombax with its buttressed trunk gave place to the unsightly Baobab. The mountains seen were flat, and seldom over 2000 feet high. From a point 80 miles below the confluence, up to Rabba, wherever they had penetrated any distance the soil was found to be sandy, mixed with iron, therefore not fertile, but it appeared to suit the Bassia Parkii, or butter tree, which occupied extensive tracts, and the quantity of butter from which, offered them for sale, would have filled a large ship. Some mountains on the Kworra recently visited had a vegetation similar to that of the Cape, including Proteas, Aloes, Ixias, etc. The river margin was found to be always formed of a low slip of land, usually swampy, and covered with tall Grasses, among which was a Gynerium which seemed identical with G. argenteum of the English gardens. The Fan Palm was observed to form a trunk sometimes 60 feet high, but always with its greatest diameter in the middle, so that it had no pretensions to beauty; while in the Oil Palm (Elais) the slender stem always tapered from the base. Regarding the disputed point of the sexes of Elais, Mr. Barter mentioned that both sexes sometimes occur on one tree, although in most places they are on different trees; only those plants which produce male flowers were pierced for making wine. Of medicinal plants, Thonningia sanguinea appeared useful in dysentery, and was thus used by several nations; it was found to be rare, but was occasionally seen in the markets. A large Spathodea covered with flowers as large as the hand, and of a colour only equalled by Rhododendron javanicum, had been found. The little known Guinea Peach, Sarcocephalus esculentus, was fine-looking, but not very palatable. Of other edible fruits some of the Spondias were not amiss; about seven distinct fruits known as Plums were eaten. At Idda the fruit of a kind of Mango was purchased, but the tree producing them could not be seen. Inland, the Leguminosæ were well represented; of Polygala, eight or nine species had been found; Rubiaceæ were abundant, including many handsome shrubs deserving of cultivation; and the Ficus tribe everywhere.

SEASONABLE HINTS.—One of the main sources of mischief to Pelargoniums at this season consists in keeping them too close. Whenever the weather will allow, open the lights above, and let them have all the air you can. If the house be at all damp, this will generally be sufficient to dry it; if not, a little fire heat will do it; but mind, it must be only a little. Where air is frequently given this will not often be necessary, and the plants will be strong and healthy, and the bloom fine, instead of the reverse, as is so frequently the case. It may be well to inquire if ground has yet been prepared for Dahlias; if not, let it be done without delay. It is too frequently the habit to plant Dahlias when planting time comes round, without any further preparation than making a hole. Instead of this, if not already done, let the ground be well trenched over, and so remain till the Dahlias are put in. The advantage of this practice will be seen when they bloom.—*Memo.*

ROSES FOR BEDDING.—The following make beautiful beds:—Devoniensis, Mrs. Bosanquet. and Souvenir de la Malmaison. The most striking bed that I have ever seen, however, was made with dwarfs of Géant des Batailles, with the Noisette Aimée Vibert planted between and pegged down over the bed in autumn—the white blossoms and glossy-green leaves of the latter make a fine contrast with the vivid crimson of the former.—D. K.



The Floricultural Cabinet.

APRIL, 1858.

ILLUSTRATIONS.

No. I.—GESNERIA CINNABARINA.
II.—THUNBERGIA LAURIFOLIA.

FEW genera have received so many and such lovely additions to the number of their known species in so short a period as that of Gesneria, to which we may now add the plant we here figure, *Gesneria cinnabarina*, made known to us through the exertions of M. Ghiesbrecht in a district that abounds in some of the choicest productions of the hand of Nature—Guatemala. In habit the present species bears great resemblance to *G. zebrina*, but exceeds that fine plant in attractive beauty, not only of flower but foliage. The former are a clear, bright scarlet red, gradually passing off in streaks to white on the underside of the tube; the mouth of the tube sulphur yellow. The latter resemble in size and shape the leaves of *G. zebrina*, but, instead of being streaked and blotched with the dark velvety hue of that variety, the leaves of *G. cinnabarina* look like crimson velvet, and, when seen sideways, of a deep, rich crimson red, caused by the innumerable red hairs with which the entire plant is almost covered. The blotches and streaks are deepest along the course of the leaf-veins. It will prove one of the choicest ornaments of our stoves and greenhouses.

THUNBERGIA LAURIFOLIA

Is a very remarkable species, not merely for the beauty of its blossoms but for their size, and the vigorous habit of the entire plant. The flowers are of a clear light blue, with a white throat, tinged with yellow, and marked with light wavy lines; in some instances they measure nearly four inches across. The leaves, as the name indicates, resemble to a certain degree those of the laurel, of a rich shining green, and when of full size quite equal to them. Mr. Ingram, of the Royal Gardens, Frogmore, raised plants from seeds supposed to have originated in the Malayan Peninsula; others, sent by Dr. Thompson, of the Botanic Gardens, Calcutta, were raised at Kew, and flowered almost at the same time as those at Frogmore. It requires a moist stove-heat, such as orchids flourish in, and makes rapid growth in such a situation, covering a trellis or climbing a pillar very quickly; a free use of the syringe is very beneficial not only in promoting its growth but in clearing it of insects, to the attacks of which it appears to be rather subject. It may be increased readily by cuttings.

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DESCRIPTION OF A CHINESE GARDEN.

COMMUNICATED BY MR. SHEPPARD, BURY.

THE following account, from the pen of Mr. Fortune, of his recent visit to the garden of one of the most enlightened of the Chinese Mandarins, will probably afford entertainment, if not instruction, to the reader, the more especially as it shows much of the style in which gardens are laid out in a country even yet but imperfectly known to Europeans, and from whence we have received so many fine plants, chiefly through the perseverance of the enterprising botanical traveller to whom we are indebted for the following relation. Of Howqua's garden Mr. Fortune says:—"It is situated near the well-known Fa-tee nurseries, a few miles above the city of Canton, and is a place of favourite resort, both for Chinese and foreigners who reside in the neighbourhood, or who visit this part of the Celestial empire. I determined on paying it a visit, in company with Mr. M'Donald, who is well known in this part of the world as an excellent Chinese scholar, and to whom I am indebted for some translations of Chinese notices, which appeared very amusing to us at the time, and which I dare say will amuse you.

"Having reached the door of the garden, we presented the card with which we were provided, and were immediately admitted. The view from the entrance is rather pleasing, and particularly striking to a stranger, who sees it for the first time. Looking 'right ahead,' as sailors say, there is a long and narrow paved walk, lined on each side with plants in pots. This view is broken, and apparently lengthened by means of an octagon arch which is thrown across, and beyond that, a kind of alcove covers the pathway. Running parallel with the walk, and on each side behind the plants, are low walls of ornamental brickwork, latticed so that the ponds or small lakes which are on each side can be seen. Altogether the octagon arch, the alcove, the pretty ornamental flower-pots, and the water on each side, has a striking effect, and is thoroughly Chinese.

"The plants consist of good specimens of southern Chinese things, all well known in England, such, for example, as Cymbidium sinense, Olea fragrans, Oranges, Roses, Camellias, Magnolias, etc., and, of course, a multitude of dwarf trees, without which no Chinese garden would be considered complete. In the alcove alluded to there are some nice stone seats, which look cool in a climate like that of southern China. The floor of this building is raised a few feet above the ground level, so that the visitor gets a good view of the water and other objects of interest in the garden. That this is a favourite lounge and smoking place with the Chinese, the following Chinese notice, which we found on one of the pillars, will testify:—'*A careful and earnest notice:* This garden earnestly requests that visitors will spit betel* outside the railing, and knock the ashes of pipes also outside.' Several fine fruit-trees and others are growing near the walks, and afford shade from the rays of the sun. On one of these we read the following:—'Ramblers here *will be excused* plucking the fruit on this tree.' How exceedingly polite!

"Near the centre of the garden stands a substantial summer-house, or hall, named the 'Hall of Fragrant Plants.' The same notice to smokers and chewers of betel-nut is also put up here; and there is another and a longer one which I must not forget to quote. It is this:—'In this garden the plants are intended to delight the eyes of all visitors; a great deal has been expended in planting and in keeping in order, and the garden is now beginning to yield some return. Those who come here to saunter about are earnestly prayed not to pluck the fruit or flowers, in order that the beauty of the place may be preserved.' And then follows a piece of true Chinese politeness:—'We beg persons who understand this notice to excuse it!' Passing through the Hall of Fragrant Plants, we approached, between two rows of Olea fragrans, a fine ornamental suite of rooms tastefully furnished and decorated, in which visitors are received and entertained. An inscription informs us that this is called the 'Fragrant Hall of the Woo-che tree.' Leaving this place by a narrow door, we observed the following notice:—'Saunterers here will be excused entering.' This apparently leads to the private apartments of the family. In this side of the garden there is some fine artificial rockwork, which the Chinese know well how to construct, and various summer-houses tastefully decorated, one of which is called the 'Library of Verdant Purity.' Between this part of the garden and the straight walk already noticed there is a small pond or lake for fish and water-lilies. This is crossed by a zigzag wooden bridge of many arches, which looked rather dilapidated. A very necessary notice was put up here, informing 'saunterers to stop their steps in case of accident.'

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* Betel-nut is much used by the southern Chinese.

"On the outskirts of the garden we observed the potting-sheds, a nursery for rearing young plants and seeds, and the kitchen-garden. Here a natural curiosity was pointed out by one of the Chinese, which at first sight appeared singularly curious. Three trees were growing in a row, and at about twenty or thirty feet from the ground the two outer ones had sent out shoots, and fairly united themselves with the centre one. When I mention that the outer trees are the Chinese Banyan (*Ficus nitida*) it will readily be seen how the appearance they presented was produced. The long roots sent down by this species had lovingly embraced the centre tree, and appeared at first sight to have really grafted themselves upon it.

"I am afraid I have given a very imperfect description of this curious garden. Those who know what a Chinese garden is will understand me well enough, but it is really difficult to give a stranger an idea of the Chinese style, which I have been endeavouring to describe. In order to understand the Chinese style of gardening, it is necessary to dispel from the mind all ideas of fine lawns, broad walks, and extensive views, and to picture in their stead everything on a small scale—that is, narrow paved walks, dwarf walls in all directions, with lattice-work or ornamental openings in them, in order to give views of the scenery beyond; halls, summer-houses, and alcoves, ponds or small lakes, with zigzag walks over them; in short, an endeavour to make small things appear large, and large things small, and everything Chinese. There are some of these ornaments, however, which I think might be imitated with advantage in our own gardens. Some of the doorways and openings in walls seemed extremely pretty. In particular, I may notice a wall about ten feet high, having a number of open compartments filled with porcelain rods made to imitate the stems of the bamboo. I shall now close this with the modest lines of the Chinese poet, which we found written in the 'Library of Verdant Purity,' and which seemed to be an effort to describe the nature of the garden:—

"'Some few stems of bamboo-plants
A cottage growing round;
A few flowers here—some old trees there,
And a mow[*] of garden ground.'"

* * *

Linnæa borealis.—This, I believe, is generally considered a Scotch plant, and until I discovered it in Northumberland I was not aware that it was to be found in this country. I gathered my specimen twenty miles north of the Tyne, and two other rare ones were growing within one hundred yards of the same spot, namely Lathræa squamaria, and Trientalis Europæa. Does any one know an English locality, besides the above, for Linnæa borealis?—*M. Bell, Raby Gardens.*

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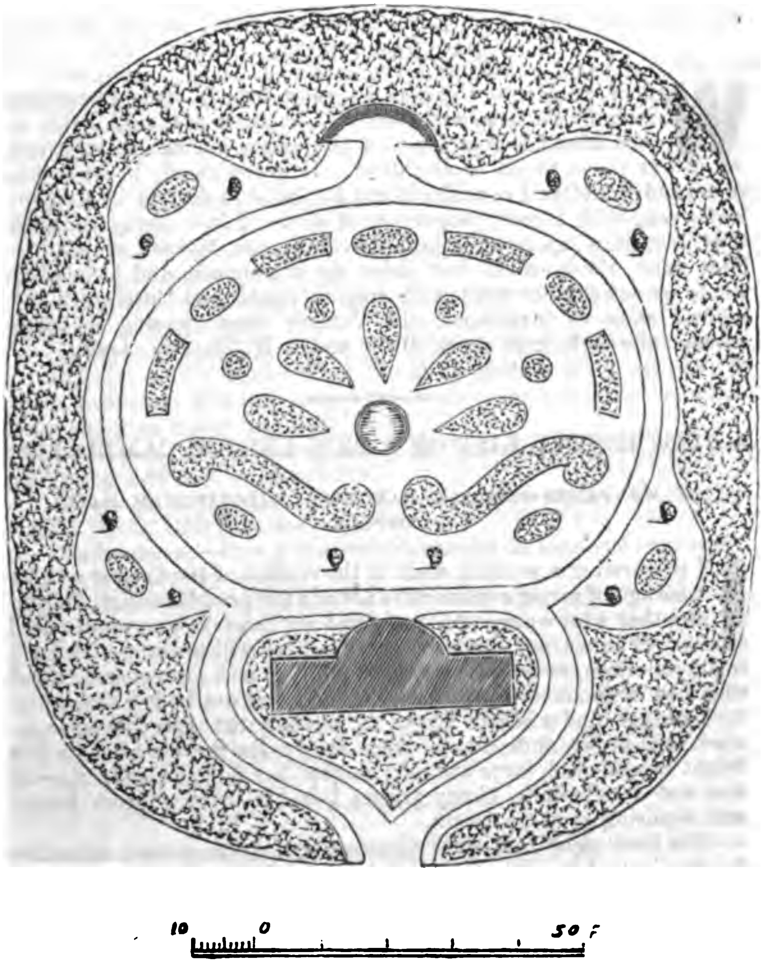
[*] A mow is about the sixth part of an acre.



DESIGN FOR A FLOWER-GARDEN IN FRONT OF A CONSERVATORY.

BY T. RUTGER, ESQ.

The annexed design is intended for a Flower-garden in front of a conservatory. The beds are intended to be on grass, or they might be placed on gravel, when the walk round would be occupied with the gravel, which would afford room for a wider verge of grass adjoining the shrubbery. A pond for gold and silver fish is given in the centre, and there is a covered seat shown at the end. The smaller beds may be appropriated to flowers in mass.

PAMPAS GRASS.

WHEN at Monte Video a few years back I made excursions into the Pampas, and have seen this grass, though never in such abundance as some of the native inhabitants informed me it was to be found more inland. It grows chiefly in *low* situations, and therefore I consider it will be found to do best in a damp, loamy soil, with a good proportion of sand. I have always noticed that it springs up most vigorously where the *lagunas* or shallow lakes exist, these are all but dried up in summer, and have their whole extent then covered with grasses, reeds, and thistles, in the highest state of luxuriance, the Pampas Grass waving its large silvery tufts aloft, high above all the rest.—W. BENSON, *Leeds*.

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A DESCRIPTIVE LIST OF A FEW CHOICE CAMELLIAS.

BY MR. JAMES STEWART, GARDENER, WITCHINGHAM HALL, NORFOLK.

IN performing a promise made to the readers of the *Cabinet* a short time ago, of giving a descriptive list of a few good *Camellias*, I beg to say that I have purposely restricted my remarks to a very limited number of kinds, and have selected such as will prove useful for a small collection, as none of them are inferior, and consequently those who may be inclined to purchase the sorts will not be led astray.

I cannot find a better flower to head my list than *Triumphans;* when well grown none can be more showy, the flowers are of a fine bright carmine red, large and very double, the foliage also is of great size and a rich, dark, glossy green; I find it to be a gross feeder, and requiring good treatment.

For form none can excel *Countess of Orkney*, a most attractive flower, pure white with stripes of great regularity, imbricated.

Donckelaari.—A fine crimson mottled with white; deserves to be in every collection, as it generally is.

Fordii.—I find this a very useful flower, insomuch that very small plants of it may be had covered with blossoms, indeed, quite a mass of flower.

Chandleri is most beautiful when well grown, a fine deep crimson, sometimes mottled with white.

Imbricata alba.—A pure flower, the white as well as the faint rose stripes very delicate, it is rather a shy bloomer, however.

Rubra pleno is very free blooming.

Hally's Monarch.—A rich scarlet crimson, of strong and vigorous habit, with fine foliage.

Colvilli.—This is a very double flower, but of short duration;

being so full of petals the centre frequently falls out when the flower is fully expanded.

Alba pleno.—Another extremely double variety, and a magnificent flower, often exceeding four inches across.

Imbricata.—Red, must rank with the most useful flowers, coming into bloom so early, in fact, it may be had in flower by the beginning of October.

Tricolor is a beautiful thing when in bud, but is semi-double when expanded; white, slightly striped and spotted with carmine.

Lady Hume's Blush is well known to every one as a most beautiful blush, or French-white flower.

Alethiflora is an irregular flower, but still very showy from the intensity of its colour.

Sweetii is a good rosy flower, but rather a weakly grower.

Elegans.—Very showy, free blooming and a good grower; it much resembles *Woodsii*, in fact, there is little difference between them either in flower or habit.

Bealii.—A fine crimson, late and free blooming, it is rather straggling, however, in its growth.

Juliana is an excellent formed flower, and very free, but rather small; white, with pink stripes.

Candidissima.—One of the most beautiful for form and regularity, a fine, clear, creamy white.

All the above may be had at very reasonable prices; there are many others to be found in different collections that are quite as good no doubt, but having paid considerable attention to this lovely tribe (the outlines of my practice I have already given in a late number), I would recommend the foregoing as suitable for those who may have room for a few only, and who may not feel inclined to purchase new varieties at a higher cost, and that have not been so well tried.

ON LATE-FLOWERING PLANTS.

BY MR. PETER MACKENZIE, WEST PLEAN, NEAR STIRLING.

IN some places there are few late-flowering plants cultivated to supply the place of those that have made the flower garden gay in summer and early autumn. If the *Colchicum autumnale* and its varieties were cultivated to a greater extent, a want, in some measure, would be filled up in situations that would be pleasing to many who have small flower gardens. The double flowering Meadow Saffron continues a long time in blossom, and a mixture of the white-flowering and variegated-leaved, also the *Leucojum autumnale*, the *Crocus autumnalis*, and plants of a similar nature, would add beauty and variety to flower beds and borders, until the approach of winter.

The following remarks on the general culture and management of bulbous-rooted flowers may be useful to some of your readers. Bulbous-rooted flowers differ from others in requiring, in their cultivated state, to be frequently taken up and replanted. Fibrous-rooted plants, which grow much at the root, require this occasionally, but almost all bulbs frequently. The reasons are, that in deeply comminuted, rich ground, most sorts, but especially those which form their new bulbs beside the others, multiply so fast that the bulbs become crowded, small, and unfit to send up strong flowers; that many sorts, as in *Narcissus*, *Tulip*, etc., which form their new bulbs *under* the old one, send down their bulbs at last so deep, that they come up weakly, and, after a time, cease to appear at all, as in the bulbous-rooted *Irises*, *Colchicums*, etc.; and that some, on the contrary, which form their new bulbs *over* the old ones, send them up at last above the surface, as in *Crocus*, *Gladiolus*, etc., and are consequently killed by the frost or draught. Hence the finer bulbs of florists require to be taken up every year, and all the border bulbs at least every three or four years. The time to do this is when the plant has flowered and the leaves have begun to decay.

No bulb should be taken up for any purpose, or injured in its growth in any way, *while the leaves are green*, for it should ever be remembered by gardeners that it is the leaves that bring the root to maturity, and prepare it for flowering the following year. If these are injured or cut off, or if the plant is transplanted, unless with such a ball as not to touch any of its fibres, while in a growing state, the bulb will not recover so as to be able to flower, for at least one year, or perhaps more.

Autumnal-flowering bulbs are not in a state of rest till the beginning of the following summer, as the *Colchicums*, autumnal-flowering *Crocuses*, *Amaryllis lutea*, and a few others. These, therefore, are to be taken up when their leaves begin to decay, early in summer, their offsets separated and planted in the nursery department, and the parent bulbs replaced in a month or six weeks, in order that they may have time to establish themselves and flower before winter.

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NOTES ON A FEW SELECT FLOWERING SHRUBS.

BY CLERICUS.

THE annexed brief descriptive list of a few of the most useful and ornamental of the many beautiful hardy flowering shrubs, may prove useful, especially as some among them are too little known, and might easily be forgotten or overlooked by persons desirous of purchasing novelties. Any of the following will prove excellent additions to the already extensive assortment of shrubs generally grown in the pleasure-ground, while for small, select grounds, the list will prove an excellent guide, as, in such places, nothing but what is either ornamental or possesses some other valuable quality ought to be admitted. It is too much the practice to fill these grounds with a multitude of common shrubs, and thus we see the same "eternal round" of things over and over again, when a much better effect might have been produced by exercising a proper judgment in selecting such as are not only beautiful in themselves, but capable of imparting additional pleasure from being more seldom met with in collections.

That they may be planted judiciously, and with effect, they should be grouped with due regard to height and colour. To facilitate this, I have classed them according to their colours, and given such remarks on soil and situation most suitable to each as will aid in their successful cultivation.

SHRUBS WITH WHITE FLOWERS.

Abelia rupestris.—A small trailing deciduous shrub, a native of China. Its flowers are small, almost like those of the Honeysuckle, are exceedingly fragrant, and are produced in abundance in autumn. A dry warm situation is required. It is increased both by layers and cuttings of the half-ripened wood, planted under a hand-glass out of doors.

Deutzia corymbosa.—This forms a very pretty bush, about four feet high. The flowers are much like those of *D. scabra*, but emit a very agreeable fragrance, not unlike that of *Aloysia citriodora.* It is a native of China, and will thrive in any situation. It is easily increased by cuttings.

Deutzia gracilis.—One of the most profuse flowering of all the *Deutzias*, although it certainly does best with a little protection. It is very pretty in the border, or grown as a standard, and should be in every collection.

Philadelphus mexicana.—This plant is a native of the mountains of Mexico. It forms a small slender bush about two feet high, and requires to be planted in a somewhat warm but damp situation, when it produces a profusion of flowers, emitting a very fine perfume. It is excellent for forcing early in the season, and may be increased easily by cuttings of the half-ripened wood, planted under a hand-glass.

Ribes albida.—This species is beyond all comparison the most beautiful of all the pale flowering Currants known. The flowers are of the most delicate French white, with a rich pink eye; the racemes are larger than those of *R. sanguinea*, and it is even a more profuse flowerer. It will grow in almost any kind of soil and situation, and is easily propagated by cuttings of the ripe wood, planted in the same manner as the common Currant.

Spiræa vaccinifolia.—A Nepal shrub, growing about three feet high, and very pretty when in flower. It thrives best in a shady American border, and is easily propagated by cuttings.

Stuartia pentagyna.—This was introduced many years ago from

Carolina. The flowers are large and cream-coloured, are produced in July and August, and the plant grows about ten feet high, and is propagated by cuttings and layers.

Viburnum macrocephalum.—This highly beautiful plant was introduced from China in 1844. It is certainly one of the finest hardy shrubs that has been brought into this country for many years. The clear white flowers are produced in heads almost as large as those of the *Hydrangea hortensis*, and are exceedingly showy. It grows eighteen or twenty feet high, and is increased by cuttings of the half-ripened wood, planted under a hand-glass.

Viburnum plicatum.—This is also a very handsome species, but not equal to the last; the heads of flowers are about the size of the Common Gueldres Rose. The plant is a neat grower, attains the height of eight feet, and blooms profusely. It is also propagated by cuttings.

SHRUBS WITH YELLOW FLOWERS.

Berberis Fortuni and many other kinds are fine plants, and, forming low evergreen shrubs, are beautiful objects, calculated for dry borders or rock gardens.

Calycotoma spinosa.—A very pretty shrub, of slender habit, resembling a Cytisus or Genista. Its flowers are produced in June, and it is propagated by seeds. A warm situation and light dry soil are its requisites. It is a native of the south of Europe.

Edwardsia Macnabiana.—A fine handsome shrub, requiring a warm and sheltered situation, and a light, dry soil. Under such circumstances it will flower profusely. It is increased by cuttings.

Forsythia viridissima.—A very ornamental deciduous shrub, growing eight or ten feet high. It flowers early in the spring, before the leaves are unfolded; it is very handsome, will grow in almost every soil and situation, and was introduced from China by the Horticultural Society through Mr. Fortune. It is easily propagated by both layers and cuttings.

Jasminum nudiflorum.—A beautiful species, introduced from China by Mr. Fortune; it does best if trained to a south wall, and will there produce its flowers in the greatest perfection in a warm situation. Deserving of a place in every collection.

Rhododendron Smithii aureum.—A magnificent hybrid, with large rich yellow flowers. Ought to be in every garden where choice plants are an object.

SHRUBS WITH RED AND SCARLET FLOWERS.

Azalea obtusa.—This charming species may be regarded as the gayest of all the red Chinese *Azaleas* in cultivation. It forms a little bush, bears a profusion of deep red flowers, and may be propagated by cuttings. A warm situation on the borders should be allotted to it.

Azalea Rawsonii, Captain Rawson's Azalea.—A fine kind, requiring a warm situation.

Habrothamnus fasciculatus.—A very handsome but somewhat tender plant, requiring the shelter of a wall, and a light dry soil.

Mitraria coccinea.—A singularly beautiful plant, a member of a very tender order; will require a warm situation, and the support of a stake.

Rhododendron Standishii.—A hybrid of a very superior character, with violet crimson flowers, and a fine compact growth.

Rhododendron barbatum.—A beautiful deep rose-coloured or rather scarlet species, from the north of India. The trusses of flowers are round, compact, and smaller than the Indian species generally, but are very conspicuous.

Ribes Sanguinea flore-pleno.—This kind of scarlet Currant blooms later than the old *R. sanguinea,* and also remains much longer in flower than that species. It will grow in any soil and situation, and increases freely by cuttings.

Ribes speciosum.—One of the most showy of the genus, having the habit of the Gooseberry, yet vieing in the brilliancy and form of its flowers with the elegant Fuschia, their colour being crimson. It was introduced from California by Mr. Menzies, during the voyage of Vancouver. It thrives well in the open ground, growing to a large bush, and continues in flower for six weeks. It will do beautifully trained against a wall.

SHRUBS WITH ROSE-COLOURED FLOWERS.

Azalea ovata.—A fine species introduced from China. It grows in some parts of its native country to the height of eight or ten feet, but on hilly situations it seldom reaches more than two or three. The flowers are produced in great profusion during April and May, and the plant must be grown in a warm and dry situation.

Daphne japonica.—The flowers of this fine kind emit a very agreeable fragrance. The plant requires to be grown in a warm situation.

Escallonia Organensis.—A lovely bush, growing two feet high, and requiring light soil and a dry, warm situation. The flowers are a very deep rose, and propagation is effected by cuttings, struck under glass in a little heat.

Escallonia macrantha.—If possible more beautiful than the above and more hardy, and of a deeper colour. Should be in every collection.

Habrothamnus corymbosus.—A free bloomer, and more hardy than *H. fasciculatus.* The situation must be dry and warm, and it will be the better for the protection of a wall during the winter.

Indigofera dosua.—Sent to the Horticultural Society by Dr. Falconer, from the Botanic Garden, Saharanpur. Its pinnated leaves and racemes of handsome pea-shaped flowers render it a very pretty object. It grows freely from cuttings, and forms only a small and slender bush.

Rhododendron Aprilis.—A hybrid possessing considerable attracions. The flowers are of a very pale rose colour, and are produced abundantly.

Rhododendron chamæ-cistus.—A plant with a very dwarf habit, but producing large conspicuous flowers of a pale rose colour. It thrives best in a warm and dry situation, where it is partially shaded from the rays of the sun.

Rhododendron fragrans.—It forms a dwarf shrub, different in aspect from *R. ponticum*, and is well suited for the front of shrubbery borders. The flowers emit a very pleasant fragrance.

Rhododendron Nilagiricum.—This lovely species will grow in almost any situation or soil. It ought to be in every collection.

Weigela rosea.—Perhaps, taking it altogether, a more beautiful hardy shrub than this has not been introduced for many years. Its culture is very easy, and propagation also; it may be trained against a wall, but should be judiciously thinned.

SHRUBS WITH BLUE FLOWERS.

Ceanothus pallidus.—The flowers are paler and somewhat smaller than those of *C. azureus.* It forms, however, a beautiful dwarf shrub, and will grow in any common light soil, provided the situation be warm. Under such circumstances it will flower freely. Increase is effected by cuttings taken off in the autumn, and planted in light sandy soil under a glass.

Ceanothus thyrsiflorus.—This is a superior kind to the last; in favourable situations it attains the height of three or four feet, and becomes completely covered with its long thyrses of delicate blue flowers. It will thrive in almost any kind of soil and situation, and is readily increased by cuttings.

Chamestes lanceolata.—We are only acquainted with this plant through Sir W. Hooker, who figured and described it in the "Bot. Mag." t. 4338. We should judge it to be a very beautiful subject for the flower-garden. The flowers are tubular, of a deep blue, and are produced in drooping umbels, during the whole of the summer. If planted in a sheltered place it will attain the height of four or five feet.

Veronica Lindleyana.—The flowers of this species, which when kept in the greenhouse are nearly white, become of a much darker colour when the plant is grown in the borders; in the latter situation it is very ornamental, but should be favoured with a warm situation.

SHRUBS WITH LILAC FLOWERS.

Azalea squamata.—This Azalea flowers without leaves, producing at the end of every little shoot a large solitary flower of a clear rosy lilac colour, distinctly spotted with crimson. The habit is dwarf, and a warm and sheltered situation is requisite for it to thrive well. Increase is effected by cuttings.

Daphne Fortunii.—A deciduous species, very handsome. It forms a dwarf shrub two or three feet high. In March and April the flower-buds expand, and the plant becomes completely covered with its lilac blossoms. The cultivation is easy. A loamy and well-drained soil, full exposure to the sun whilst forming and ripening its wood in summer, and rest during the winter when the branches are naked, are the requisites. It will very likely prove a good forcer.

Paulownia imperialis.—This is a native of Japan, and one of the finest of Dr. Siebold's introductions from that country. It grows to a tree, thirty or forty feet high, producing its flowers in terminal panicles after the manner of those of *Catalpa syringifolia.* Unless planted in a well-drained and exposed situation the shoots are liable to become too succulent, and are then injured by the slightest frost; but if grown hardily, it endures our winters very well.

Rhododendron campanulata.—A more superb species of Rhododendron than this makes when planted in the borders, can scarcely be conceived. It attains the height of five or six feet, and may be planted in almost any situation, provided the soil be light and well-drained. Propagation is effected by layers, and grafting on the stocks of *R. ponticum*, or any other hardy kind.

THE NEW DAHLIAS.

BY G. G.

AS the Dahlia season and preparations for planting are coming on, it may not be out of place to give a few hints on the choice of sorts among the new ones, as an assistance to intending purchasers. Descriptions given in the catalogues of the raiser are frequently overdrawn, and it is impossible to place entire reliance on such; growers of established reputation are not charged by me with misrepresentation, but as every owl considers its own young the most beautiful, it is too often necessary to make considerable allowance on this score. There are many persons who grow Dahlias who have not the opportunity to attend the exhibitions, and visit the nurseries of the principal growers, to these a list of sorts with the dispassionate and truthful remarks on their excellences or defects is at all times useful.

Mr. Rawlings' *King* will become a popular bloom, the petals being particularly firm and smooth, and flower well shaped. In colour it is a novelty, a sort of fawn, with a tinge of red and fine purple lines. I have seen flowers that were the centre a trifle higher would be perfection itself. His *Mr. Critchett* is another good flower, a sort of amber, of medium size, excellent outline and substance, the centre beautifully up and regular, the petals smooth and well formed. An admirable flower when well grown.

Venus, raised by the same fortunate grower, will be a favourite, and if grown well its capabilities rank high. Colour light blush tinged slightly with purple; the petals are perfectly arranged, well cupped and formed, the centre high, and the outline also perfect.

Alice Downie has been considered by some the best flower of the season, yet although I do not fully coincide in that opinion, it is certainly a first-class flower, colour white, outline good, petals firm and well arranged, the centre tolerable.

Standard Bearer (Alexander's), rather small, but a beautiful flower, outline and centre perfect, petals nicely cupped; colour rich purple crimson; its only deficiency is size.

Sir Joseph Paxton (Dodd's), a large flower, rich yellow, of great depth and substance, will be a great favourite, and should be in every collection.

Marchioness of Aylesbury, by the same raiser, is another large flower, well formed and deep, there is a little fault sometimes in the eye; colour blush pink, slightly edged with rosy purple.

Mrs. Church (Church), a deep yellow with small crimson tips, which vanish when several flowers have been produced; centre high, of good depth, and round outline; a full-sized useful flower.

Village Gem (Green), white, very neatly tipped with claret, outline good, petals firm and well shaped; a very ornamental flower and constant, it will prove a favourite for the border, where it has a striking appearance.

Canary (Fellowes), this is but a moderate flower, size about medium, outline good, and also firm in the petal, but the eye lays rather too low.

Marion, another flower of Mr. Fellowes', is reported to have proved not quite so good as expectation had been raised, and rather coarse.

Barnes' *Elizabeth* is a large flower of considerable depth, and well formed; the petals want more substance, however, and the eye is too low and rather loose; colour rosy pink.

Sir Henry Havelock.—The best flower of Mr. Fellowes', it possesses some really good qualities, size large, outline good, considerable depth; colour brilliant orange-red. Fellowes' *Commander* is a useful maroon.

A few good fancies must not be omitted, my note-book reminds me of Salter's *Marc Antony*, a flower capable of improvement, but remarkable for great attractions in colouring—golden yellow, striped with bright rosy crimson, constituting it a very showy flower.

Rawling's *Queen* is the best fancy Dahlia, as far as form is concerned, that has come under my notice; the flower wants more colour, however, the ground being white, lightly streaked with crimson.

Rawling's *Jupiter*, size moderate, outline first-rate, petals smooth and firm, colour a deep maroon, with distinct white tips, shading to crimson where they unite with the ground.

Oliver Twist (Fellowes), a very showy Dahlia, large, and well filled in the centre, but scarcely high enough, or sufficient depth; colour pale blush striped with clear crimson; very effective in the border.

Ellen is a tolerably good flower in every respect, and pretty as regards colouring, amber and rosy carmine with white tips.

Tiger (Keynes'), a novelty in colour, which is its only recommendation, being flat and much too long in the petal; chocolate or sienna red, broadly striped with maroon.

The above are only a few of the many that might be noticed, but comprise the chief novelties. There are none of the continental ones in my list, as I do not know any of them except from description.

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ON THE CULTURE OF BANKSIAS.

BY MR. ROBERT MATHER, CHELSEA.

BANKSIAS, and all plants included in the natural order *Proteaceæ*, require a house to themselves, if they are to be grown in perfection, although the greenhouse is quite available where accommodation suitable for them can be provided. It is too frequently the case, however, that we meet with badly-grown and ill-flowered specimens, which then have a miserable appearance, as their natural habit and aspect, if left to themselves or neglected, is uninviting. Where it is possible to afford a house for them, they may be made fine specimens of, and to flower nobly. In the greenhouse they are apt to be crowded along with other plants, and are too frequently stuck in some shady corner, where it is quite out of the question to expect them to do well.

The soil most conducive to the health of this tribe, and in which they flower best, is formed of equal parts of light loam and peat, with a small portion of sand; the ingredients to be broken fine and well mixed, but not sifted. In potting be careful to afford free drainage; not less than one-fourth of the contents of the pots should be filled with crocks, over which a layer of moss should be laid to prevent the passage for the water becoming clogged up by earth. Their roots must never suffer for want of water, which may be given with tolerable freedom where the drainage allows it to be carried off quickly. In summer the plants may be set out of doors, in a situation where they may receive the benefit of the morning and evening sun; but if much wet should prevail, it is best to let them remain in the house, giving all the air possible.

Banksias may be propagated with ease by cuttings, in sand, if taken from ripened wood; take them off at a joint, leaving on all the leaves except at the bottom; the pots should be set in the shade, but not on a moist bottom, or plunged, or they will be likely to damp off. Cover them with a bell-glass, and, when rooted, pot them off into small sixties with the compost before mentioned. When potted, place them under a hand-glass on a dry bottom, or in a cold frame, exposing them gradually until they will bear to be treated like old plants. This tribe is also capable of being propagated by seed, which may be sown in April, although cuttings afford the readiest means.

REVIEW.

Sutton's Spring Catalogue and Amateur's Guide for 1858. Small 4to, pp. 59. Reading: Sutton and Sons. Price 1*s*.

THIS catalogue is the best we have seen, containing much valuable information, and a priced list of all descriptions of seeds—flower seeds, vegetable seeds, agricultural seeds and roots, etc., all grown by Messrs. Sutton on their own grounds. As an example of the useful information conveyed in their "Amateur's Guide," we select the following article on the "Cultivation of Annuals:"—

"*Section* 1.—HARDY ANNUALS.

"INTRODUCTION.—The term "annual" is applied to those plants which flower and ripen their fruit the same season they are sown, and then perish. This definition is in no way affected by the fact that many annuals may be treated as biennial, or, in other words, be sown in autumn for flowering early the following season. By *hardy* annuals are usually understood those which require no artificial heat at any period of their growth; every stage of their development, from germination to the ripening of the seed, being passed in the open ground; whilst the term *half-hardy* is applied to those species which will flower—and often ripen their seed—in the open air, but need the assistance of artificial heat in the earlier stages of their growth.

"SOILS MOST SUITABLE.—In soils of a porous, sandy texture, a much greater number of sorts of seed may be committed to the open ground than in those of a heavy, retentive character; and many annuals, among those commonly termed half-hardy, only require to be treated as such when sown at an early period of the spring. It will be evident, therefore, that no classification of annuals could be given which would be strictly applicable to every locality, nor even which should hold good for all places in the same county. Perhaps the soil best suited to a majority of the annuals—and we might add, of plants in general—is a light friable loam, containing a moderate amount of vegetable matter, and sufficient sand to render it porous; but as it rarely happens that the amateur has much choice of soil, it is fortunate that most of them will succeed in any but such as is of an extremely dry, sandy, or calcareous nature, or of a stiff, heavy, retentive character.

"MANURES.—The use of strong, crude manures of an animal nature should be carefully avoided. In ordinarily good soil, an annual dressing of leaf-mould, decayed turves, or thoroughly-rotten manure, in quantities proportioned to the requirements of the soil, dug into the depth of a few inches, will be all that is requisite.

"TIME OF SOWING.—With regard to the proper season for sowing the hardy annuals, much necessarily depends on the character of the season. Of late years the springs have been so unfavourable that many of the early-sown seedlings have perished under the combined influence of frost and wet, or the scarcely less destructive agency of bright sunshine, drought, and cutting east winds. As a general rule, the first sowings of this class may be made about the middle of March; we doubt if any real advantage is gained by committing the seeds to the ground at an earlier period, for even should the weather chance to be sufficiently mild and open to permit of their being sown in February, no reliance can be placed on its continuance.

"MODE OF SOWING.—As a general rule, the surface-soil should be rather dry than otherwise at the moment of sowing, and the operation should never be undertaken when the ground is very wet, especially at an early period of the spring. In the case of seeds of moderate size, the surface-soil may be scraped aside with the edge of a trowel to the depth of a quarter of an inch, and around the circumference of the slight hollow thus made, the seeds be thinly strewn, the soil being then returned and pressed flat with the back of the spade or trowel. If the soil be of an adhesive nature, the pressure should be slight, or the surface will cake. It will be better, in this case, to cover the seeds with a littly sandy loam, or other friable soil, instead of that of the border where the sowing is made.

"The depth at which the seeds are sown will vary with their size. Large seeds, such as those of the Lupin, may be half an inch deep; while such as are very small require to be sown on the actual surface, a slight pressure being then sufficient to imbed them to a proper depth. For the majority of seeds, a very thin covering suffices; if sown too deep they are longer in germinating, and the smaller ones are liable to decay. It sometimes ensures a more even distribution of very small seeds, such as those of Campanulas, Wahlenbergias, etc., if they are intimately mixed before sowing with a little fine dry soil, the mixture being sown in the same way as seeds. Woolly seeds, as Anemone, which adhere to each other, should be rubbed with a little fine sand, or ashes, which will generally separate them.

"With a view to facilitate the vegetation of the seeds, it is often desirable to cover the patches for a few days, either with an inverted flower-pot, or, if the patches are large, with a few furze bushes.

"TRANSPLANTING.—As soon as the seedlings are an inch high, such of the patches as are too thick should be carefully thinned out, especially about the centre of the tuft. The seedlings removed may, if thought desirable, be replanted, and will generally bloom a week or two after the others. As a general rule, tap-rooted annuals, such as the Larkspurs, and most of those of the Poppy tribe, will not bear transplanting. Occasionally, they will succeed if removed very young; but they are almost always less vigorous than such as are not disturbed, and rarely worth the trouble bestowed. Transplanting should, if possible, be performed in cloudy weather, or towards evening; and, unless the soil is wet, the seedlings should be slightly watered, to settle the soil about the fibres, shading them for two or three days subsequently, should the weather be sunny. Such plants as have been sown in a reserve bed may be transferred to the borders in clumps without difficulty, if the precaution be taken of previously moistening the soil when it is of a loose, dry character. With a little skill, even masses in bloom, or plants of some size, may be removed uninjured. The blooming season of most annuals, in common with other plants, may generally be much prolonged by removing the withered flowers; for it is well known that, if allowed to ripen their capsules, the tendency to a succession of bloom is checked, and the subsequent blossoms are smaller.

Section 2.—HALF-HARDY ANNUALS.

"The term 'half-hardy,' as we have already explained, is applied to those annuals which, though they will flower freely in the open ground, require artificial heat to assist germination, and protection from atmospheric changes during the earliest stages of growth. There are but few gardens, however humble, which do not offer some convenience for raising the more tender annuals, the only really indispensable requisites being a one or two-light box, and a supply of fermenting material; and for many seeds even these conditions may be still further simplified. The ordinary hotbed of stable manure offers the simplest means of obtaining a gentle bottom-heat sufficient for most seeds, though, where other more perfect sources are available, they will of course be employed. Its construction is a simple matter enough, and is well understood by most persons possessing a garden.

"In rare cases, the seeds are sown on the layer of soil which covers the hotbeds; but the most usual, and by far the best, plan is, to sow them in pots or pans. The latter differ only in being much shallower than pots, and they require, therefore, less soil to fill them. The pots should be quite dry when used, and—to ensure a thorough drainage, which, essential for all plants, is doubly so for seedlings—must be filled at least one-third of their depth with broken crocks, the largest fragments being placed at the bottom and the smaller at the top. The remaining space should then be filled with soil (which at the time of using may be somewhat moist, but never wet) to within a half to three-quarters of an inch of the rim, when the pot should be gently struck to settle the mass, and, if necessary, additional soil added. In the case of very small seeds, such as those of Clintonia, Lobelia, or Calceolaria, the covering of soil should be very thin; and, as seeds so minute are liable to be carried down into the soil unless very carefully watered, it is even advisable to moisten the flattened surface of soil in the pot just *before* sowing the seeds, instead of afterwards.

"Towards the middle or end of May, many of the seedlings will be ready for transferring to the borders or beds they are intended to decorate; but previous to this exposure, it will be necessary to prepare them for the change, by admitting air to the frame both day and night; or, what is better, by placing them in a separate frame, in which they may be gradually "hardened off," at first by keeping the lights down during the day only, and then, after an interval of five or six days, at night also, proceeding carefully while the nights are cold.

"*Section* 3.—TENDER OR GREENHOUSE ANNUALS.

"The Greenhouse or Tender Annuals, as they are usually termed, including the Globe Amaranth, Cockscomb, Egg Plant, Browallias, Portulacas, and a few others, succeed better with bottom-heat, though the seeds will vegetate in a close frame. In either case, the plants, after pricking out, should remain in the frame until the end of June."

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NOTES ON NEW AND SELECT PLANTS.

DENDROBIUM PULCHELLUM. Nat. Ord. *Orchideæ.*—A small epiphytal orchid, with very pretty flowers, from Silhet, according to Roxburgh. The blossoms are solitary, and measure about one and a half to two inches across, the sepals pale purple, petals considerably larger, obtuse oval, striated purple lilac, the labellum beautifully fringed at the margin, bright yellow with a white band and purple edge. The leaves are about two inches long, narrow, and alternately placed. (*Bot. Mag.*, 5037.)

28. HYDRANGEA CYANEMA. Nat. Ord. *Saxifragaceæ.*—One of the many interesting plants introduced by Mr. Nuttall, through his relative Mr. Booth, from Bhotan. The flowers are in a loose corymb, somewhat spreading; the imperfect ones, which constitute the chief attraction of the plant, are furnished with from three to five broad, white sepals, wavy on the margin, and faintly veined with pink; the perfect flowers are purple, and of insignificant size. The leaves and stems are very downy, the latter both on the upper and under sides. (*Bot. Mag.*, 5038.)

29. EUGENIA LUMA. Nat. Ord. *Myrtaceæ.*—One of the most charming hardy small shrubs we possess. Its foliage very much resembles that of the Myrtle, being of a rich green, small and neat. The blossoms are white, about half an inch across, with much resemblance to those of the Myrtle, and borne in such profusion

during the summer months, as almost to hide the foliage. In its native country it attains a height of from three feet upwards, inhabiting the colder parts of Chili, from Concepcion to the Island of Chiloe, towards the south. All who delight in ornamental shrubs should procure this handsome one, as it deserves a place in every collection. To Mr. Lobb belongs the honour of its introduction. (*Bot. Mag.*, 5040.)

30. Dasylirium glaucophyllum. Nat. Ord. *Asparagineæ.*—In our last number we noticed one species of this genus as having blossomed at Kew. We have now to record a second, under the above name. Like the last mentioned, this is a native of the district of Real del Monte, in Mexico. The flowering stem put forth at the Royal Gardens, measured eleven feet in height, and there is every probability of the height increasing, to a certain extent, with the age of the plant. The spike is yellow, the flowers small, crowded together, and greenish-white; the leaves three feet and upwards in length, rigid, and minutely serrated at the edge. The stem, though not more than a foot high, is thicker than a man's arm. (*Bot. Mag.*, 5041.)

30. Talauma Hodgsoni. Nat. Ord. *Magnoliaceæ.*—A handsome small tree; in Sikkim, its native country, growing from twenty to forty feet high, and flowering in April. It belongs to the family of Magnolia, which its blossoms closely resemble, and are likewise very odoriferous. In size the flowers measure from six to nine inches across, of a pale blush, the under surface of the petals being pink and purple; the leaves, especially in young specimens, are very fine and large, coriaceous, and evergreen. Its treatment should resemble that afforded to the Himalayan Rhododendrons. (*L'Ill. Horticole*, 141.)

31. Vaccinium salignum. Nat. Ord. *Vacciniaceæ.*—The genus *Vaccinium* principally represented in northern climates by deciduous shrubs, with small flowers, affects a very different appearance in the tropical mountainous regions of both the old and new world. *V. salignum* is an instance of this, the flowers are very conspicuous, large, and highly ornamental, measuring about two inches in the tube, and, with the calyces, they are of a bright rosy carmine colour; the mouth of the tube is toothed, and green on the inner side. The leaves from two to three inches long, of a lively green, and somewhat resembling those of the Willow in appearance. The plant is an epiphyte in Sikkim and Bhotan, where it inhabits large trees in the forests. (*Hooker's Ill. Him. Plants*, 15.)

32. Datura albido-flava. Nat. Ord. *Solanaceæ.*—A fine addition to a genus remarkable for the magnificence of its flowers and foliage; its blossoms are of the usual trumpet form common to the genus, but differ from other species in their colours, being bright yellow-green: in length they measure about five inches, and are nearly as much across the mouth. The leaves are large, and of a fine dark green. It was discovered a few years back by M. F. De

Vos, the enterprising collector of Messrs. Verschaffelt, in the Isle of St. Catharine, Brazil. A temperate house suits it through the winter—in summer it may be transferred to the conservatory. (*L'Ill. Horticole*, 181.)

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NEW AND SELECT GARDEN HYBRIDS.

CLEMATIS GUASCOI.—Obtained from seed between *C. cærulea grandiflora* and *C. viticella purpurea*, by M. De Guasco, an amateur of Luxembourg; it is a very free blooming hybrid, the flowers measuring nearly four inches over, of a beautiful violet blue when they first open, passing to crimson-purple as they become older. In habit it is strong, and of a very hardy constitution; it will prove a very desirable acquisition.

2. Rhododendron acutilobum.—At first sight, this magnificent variety might be taken for another introduction from Sikkim, Himalaya, or Bhotan, so distinct is it in appearance from the hybrid Rhododendrons one is accustomed to see. It was, however, as we are informed, obtained or raised by M. Van Geert, of Ghent. The flowers are borne in large, close heads, and in shape much like those of a Campanula, the segments of the corolla very pointed, and the tube wide, the diameter across the mouth being about two inches. The ground colour of the blossoms is a delicate rosy pink, the edges being shaded off to bright carmine, very handsome and distinct. The foliage is ample, the leaves rather narrow, but long, and of a rich, glossy green. We are not aware from what individual sorts the cross was obtained.

3. Cydonia Japonica; *var.* Mallardii.—The old *Cydonia* (more commonly called *Pyrus*) *Japonica* is well known as a beautiful hardy flowering shrub. We have the gratification to announce a variety raised by M. Mallard, of Mans, of great merit. Its flowers are quite as large as those of the common one, white, most beautifully striated towards the centre with rosy carmine on both surfaces of the petals, so as to leave a wide and distinct white margin all round them. It is a very free-blooming hybrid, and we can scarcely conceive two shrubs more beautiful when in blossom against a wall in spring than a plant of the old species, and the present new variety. Mr. Verschaffelt has sent it out.

4. Scarlet Geranium, Lord John Russell (Kinghorn's), trusses very large, habit close and compact; well adapted for bedding.

5. Scarlet Geranium, Lizzy.—A very large flower, and splendid truss, pale salmon colour; habit robust, yet close and compact. An excellent variety.

6. **Scarlet Geranium, Rose Queen.**—Rosy pink, trusses compact and flowers well formed.

7. **Scarlet Geranium, Christina.**—Deep rosy pink, dwarf, compact, and very free blooming.

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QUESTIONS, ANSWERS, AND REMARKS.

Jasminum nudiflorum.—How am I to treat this plant to make it bloom freely?—*Cis.* [We have had three or four inquiries respecting this pretty plant recently, we shall, therefore, without inserting the letters of all our correspondents, give one general answer. In the first place, it is one of the best winter-flowering plants we have, and mostly blooms profusely against a south wall; it may be grown either in a pot, border, or against a wall. In habit there is not much difference between this and the old sweet scented white Jasmine (*J. officionale*). If grown in pots, it requires to be kept dwarf and bushy, which may be done by cutting in rather freely, especially the strong rambling shoots, in summer, in order to encourage the production of small twiggy ones which bear the blossoms. None of these small shoots should be removed until the plant has gone out of flower, it may then be cut in. The plant is hardy enough, and may be propagated with ease, either by means of the ends of the spring-shoots in a common hotbed, or by cutting the long shoots into pieces with three or four eyes, and planting them in a cool border in October; they will make good progress without further trouble. If attended to by judiciously cutting in, there will be no failure of bloom; but it must be noted that it flowers best in a pot. The soil should be rather sandy, or poor.—Ed.]

Clianthus puniceus.—I shall feel obliged if you or any of your readers would inform me what treatment is necessary for this plant, so as to make it bloom well; and further, will it flower and bear our winters if trained against a wall having a west aspect?—*A new Subscriber.* [To grow the Clianthus well against a wall, the aspect should be southerly, and the soil a mixture of peat and rich loam. It requires protection in winter, which may be afforded by a straw or reed screen, matting, etc. The roots should be mulched or covered with litter. We have seen a beautiful specimen growing on an open wall in Norfolk, covering it for an extent of several yards, and reaching to the top, blooming profusely every season.—Ed.]

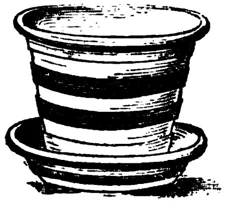
Leafing of Plants.—An acute observer of nature after many years observations has drawn up the following list, showing the order in which a number of trees and shrubs first put forth their leaves, and states that he has found the same order to prevail in all seasons; to some extent I have verified it myself, and, therefore, forward it for the information of the curious, who would do well to make their own remarks, and forward the result for publication in the *Cabinet*. It will be seen that out of more than thirty different sorts, the Honeysuckle is the first to expand its leaves. 1, Honeysuckle; 2, Gooseberry; 3, Currant; 4, Elder; 5, Birch; 6, Weeping Willow; 7, Raspberry; 8, Bramble; 9, Brier; 10, Plum; 11, Apricot; 12, Peach; 13, Filbert; 14, Sallow; 15, Alder; 16, Sycamore; 17, Elm; 18, Quince; 19, Marsh Elder; 20, Wych Elm; 21, Quicken Tree; 22, Hornbeam; 23, Apple; 24, Abele; 25, Chestnut; 26, Willow; 27, Oak; 28, Lime; 29, Maple; 30, Walnut; 31, Plane; 32, Black Poplar; 33, Beech; 34, Acacia Robinia; 35, Ash; 36, Carolina Poplar. Good John Evelyn considered spring frosts were gone when the Mulberry put forth its leaves, and then, says he, "set your choice greens (greenhouse plants) out of doors."—*M. M., Yeovil.*

Grand Floral Bazaar.—The Directors of the Crystal Palace Company have made arrangements for holding a grand floral bazaar in the Palace, on Wednesday, Thursday, and Friday, April 14th, 15th, and 16th, for the exhibition and *sale* of flowers and plants. Stages will be erected by the Company, and no charge made for space. The admission, one shilling, will allow of the visits of all who are fond of floriculture, who can spare time for a day's enjoyment amongst flowers and plants, and no doubt the attendance will be very great. Numerous applications, we are informed, have been made by growers for the allotment of space.

New Petunias.—We have received descriptions of the following new Petunias, raised by M. Boucharlet, Sen., of Lyons, to come out this Spring. Some are as remarkable for size as colouring:—*Leopold, premier*, bright rose colour shaded off to lilac and white; *L'Imperatrice*, white, shaded with lilac blue; *Dr. Lindley*, a fine large flower, reddish carmine, shaded; *Madame Miellez*, creamy white, marked with red and violet, passing off to clear blue, the flowers measuring upwards of three inches across; *Napoleon III.*, an immense flower, quite four inches over, a deep violet purple fading off to white, and shaded with reddish lilac passing off to blue; *Reine Blanche*, a very large white flower; *Reine Victoria*, another very large hybrid, a most beautiful lilac shading off to violet and white; *Reveillii*, white, with bright rosy centre, a large flower; *Van Houttei*, clear rose, shading off to white and lilac blue; *Verschaffelti*, rosy lilac, passing off to blue, and of fine size; *William Rollison*, very large, a clear rosy pink, passing to lively blue. The whole are stated by M. Verschaffelt to be of vigorous and free blooming habit, and to bear out fully the above descriptions. That gentleman will be able to supply plants from his nurseries at Ghent.

Mr. Fortune.—This gentleman has sailed, a few days back, once more to China, in the interest of the United States Government, to collect a supply of tea plants for a trial planting in some of the States of the Union; as well as for a few of such other Chinese productions as may appear desirable to introduce. Mr. Fortune considers the soil and climate of the Eastern States peculiarly adapted for the growth of Tea, and the Government of that great country have laudably decided on giving a fair trial. The enterprising botanist and traveller will carry with him the hearty good wishes of all lovers of science and admirers of his persevering genius.

New Porous Flower-pot.—We have received specimens of a flower-pot in a new clay, made by Mr. R. Smith, of 8, Queen's Road East, Chelsea. In appearance they are very neat and light, as well as particularly porous. They are capable of being washed clean with much more ease than those made of the old red clay, and are well adapted to promote the healthful growth of plants. Dr. Lindley exhibited and remarked favourably on them at a late meeting of the Horticultural Society. The colour of the clay is also a sure indication of the state of the soil in the pot. The Crystal Palace Company have adopted them.



Twenty-four fine Auriculas.—As an old grower and great admirer of the Auricula, I have been at the trouble of collecting the opinions of some of the most noted cultivators on the qualities of twenty-four, and now send you the result for insertion in your excellent *Cabinet*, arranged according to number of votes, the first-named in each class being considered best.

Grey Edged.—Lancashire Hero (Cheetham); Complete (Sykes); Mary Ann (Fletcher); Privateer (Grimes); Ringleader (Kenyon); Conqueror of Europe (Waterhouse).

Green Edged.—Colonel Taylor (Lee); Freedom (Booth); Champion (Page); Imperator (Litton); Prince of Wales (Ashton); Apollo (Hudson).

White Edged.—Favourite (Taylor); Countess of Wilton (Cheetham); Venus (Leigh); True Briton (Hepworth); Glory (Taylor); Catherina (Summerscales).

Selfs.—Othello (Netherwood); Metropolitan (Redman); Jupiter (Kaye); Blue Bonnet (Clegg); True Blue (Whittaker); Nonsuch (Barker).—*J. K.*

Horticultural Society.—At the last meeting, the Hon. and Rev. L. V. Harcourt in the chair, five new members were elected, and notwithstanding the severity of the weather, a great number of bulbs and interesting plants were exhibited. Of Hyacinths there were several fine collections from Messrs. Cutbush, Dobson, Jackson, Davis, Ingram and others. Messrs. Cutbush obtained the first prize for new Hyacinths, who exhibited *General Havelock*, a fine dark purple, the flowering spike near ten inches high, and quite as much in circumference, bearing 187 blossoms on it; *Mirandolina*, a very pure white, but the flowers rather small, a good spike of bloom, however; *Louis Philippe*, a double, bluish pink with purple stripes, very fine both in size and form, and of quite a new shade of colour; *Madame Rachel*, a very good rosy carmine, a fine stiff grower, but dwarf; *Lady Franklin*, a single peach-coloured variety, tipped with green; *Susannah Maria*, a Hyacinth of a decidedly new tint, a full salmon red, very double, and of good size and shape. Messrs. Henderson, of Edgeware Road, had *Prince Frederick William*, a single, deep porcelain blue; *Von Schiller*, a good single red; *Alba superbissima*, a fine single white; and several others, almost equally good.

Of Rhododendrons Messrs. Cutbush forwarded a few forced plants, the only ones we noticed. Camellias were from Mr. Glendinning, Mr. Lee, Messrs. Henderson, Messrs. Barnes, etc.; the most worthy of notice were *Countess of Derby*, a clear salmon-pink, with a pale stripe up the centre of the petals; *Prince Frederick William*, noticed in a former number, and very fine; also *Prince Consort*, a handsome crimson variety.

Some new *Cinerarias* were also shown, by Messrs. Smith of Dulwich; among them were *Miss Nightingale*, white with purple edge; *Princess of Prussia*, much resembling the latter; *Dr. Livingstone*, white, with a broad purple edge; and *Mrs. Livingstone*, white and crimson.

Mr. Rowe, of Hammersmith, exhibited specimens of a Chinese Primrose, in which the foliage resembled that of the common Primrose; the flowers, however, were not so good as those of the common Chinese species.

Of miscellaneous plants Messrs. Cutbush showed a nice collection in pots, covered with moss, including early Tulips, Hyacinths, Azaleas, Scilla Siberica, and other early forced things. Mr. Ellis, of Woodford, had a collection of cut flowers of Camellias, Azaleas, and Roses. Messrs. A. Henderson exhibited branches of the very handsome *Acacia longiflora magnifica*, and Messrs. E. G. Henderson an assortment of Cyclamens, Corræas, Ardisias, and the beautiful *Imatophyllum miniatum*. Mr. Ingram showed a magnificent specimen *Cyclamen Persicum* in profuse flower.

Among the new things, we observed cut flowers of the highly ornamental *Rhodoleia Championi*, from Mr. Fleming, gardener to the Duke of Sutherland, at Trentham, to whom belongs the honour of having flowered it for the first time in this country. *Vanda Lowi*, shown by Messrs. Veitch, who first introduced the plant from Borneo to this country, with a drooping spike a yard long, bearing large and striking handsome yellow flowers mottled with brown; in its native country the spikes have been measured fully twelve feet long. A fine new plant, supposed to be a Cynoglossum, that had only just flowered for the first time in England, was shown by Mr. Watson, of St. Alban's, brought from the Chatham Islands, on the coast of New Zealand; it bore a number of spikes of flowers, only one of which was quite expanded, but sufficient to show what a fine thing it is, their colour a pale bright blue, of the tint of a Forget-me-not, but distinctly edged with white round the corolla; the leaves are dark green, and deeply channelled. It is stated to be very nearly hardy, or at least adapted for a cool frame or greenhouse, and from flowering so early it will prove one of the best plants we have received for some time. The show of fruits and vegetables was also very good.

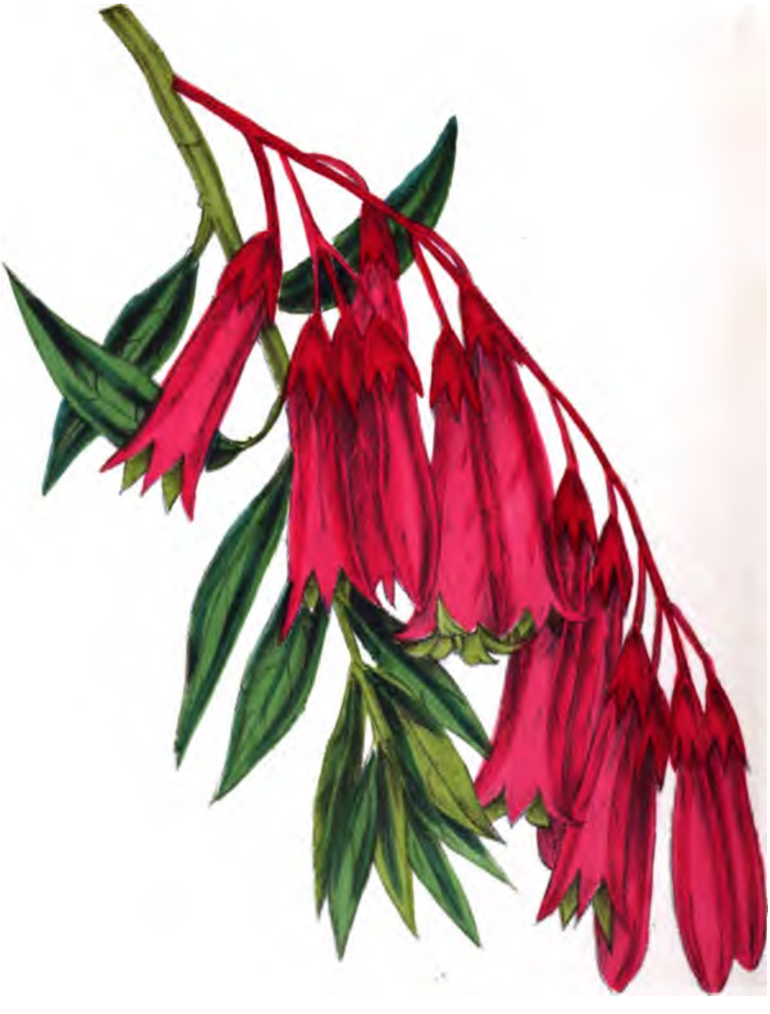
The Society proceeded to the election of a new President and Secretary, and two Members of Council, in the room of the late Duke of Devonshire and Dr. Royle. Dr. Lindley vacated the Vice-Secretary's chair in favour of C. W. Dilke, Esq., who conducted the proceedings. An extract from the minutes of the Council was read by the Chairman showing the deep sense entertained by the Society at the loss it had sustained by the death of its lamented President. The death of Dr. Royle was next feelingly alluded to. It was then announced that H.R.H. the Prince Consort, F.H.S., had been pleased to accept the honorary post of President, if elected, and at the same time that Dr. Lindley had resigned his office as paid Vice-Secretary, and was, therefore, eligible for the office of Secretary. A ballot then took place, when His Royal Highness was unanimously elected President, and Dr. Lindley Secretary. The meeting then adjourned.

A HINT TO GARDENERS.—Our friend the Editor of the Horticultural department of Emery's Journal, published at Chicago, Illinois, inserts a very useful "reminder." "Send us any items of interest in your neighbourhood. If you have a stock, or any surplus experience, such as you would, or do, talk to your neighbour at your or his fireside, just put it on paper and send to us, *as you would talk it.* It is by the record of experience and the collection of facts or observations that progress is made." We recommend the paragraph to some of our readers.

TOBACCO FOR FUMIGATION.—A few hints on raising and curing Tobacco for fumigating will oblige—*A Subscriber.*— [*Nicotiana tabacum*, the common Virginian tobacco should be sown on a slight hotbed or warm border, and the plants pricked out when in the second pair of leaves in a bed of light rich soil, in rows three feet apart. Pull them up when just coming into flower, and either hang them from lines to dry, or lay them in an airy place, turning them over frequently. *N. rustica*, called English tobacco, may be sown in the border in spring, and the seed lightly raked in and treated like the preceding, it is not so handsome a plant, but quite as useful for the purpose. The young plants are liable to the attacks of a caterpillar, that is mostly found to lodge in the joint of the leaves, they should, on this account, be looked over occasionally.—ED.]

HINTS ON ROSES.—The following short epitome of Rose-treatment contains all that is really necessary to be said on the subject:—Be not afraid of using the knife; one eye is enough to leave of any branch on the last year's growth, unless more are required to form the plant. Strong loam two parts and dung one part will grow the Rose to perfection, although in most cases ordinary garden soil, with a good spadeful of dung to each plant, will do very well. To make handsome Standard Roses the head should be as wide across as the lower branches are high above the ground. In pruning, let all healthy branches that are growing in a proper direction be retained, but having attained the form of the head, spur them close every year. Cut down all upright growing branches to the height you want side ones, leaving the top bud pointing in the direction they should grow. For the general feature of your garden, make use of continuous bloomers; that is, those of the nature of the common China. Summer Roses, that bloom a month and no more, are worthless, except for exhibition purposes. If you should desire, however, to grow summer Roses, let them have a quarter in the garden to themselves. Never let their flowerless heads cast a gloom over the borders from July to November. Half prune in the autumn to lessen the weight that has to stand against the wind, and finish in February. In planting, never forget to cut off, with a clear sharp cut, every portion of damaged root, for bruised ends and ragged wounds are generally fatal. Briars and other stocks for budding should be planted in autumn, that they may be well-established when wanted. Bud when the bark of the stock will part easily from the wood, and be quick in performing the operation. Bud as close as possible to the main stock; it makes a better head, and is close to its support. Put cuttings in the open ground in October and November, two joints under ground, and one or two above. Get Roses, as soon as you can get them to grow, into the form you want; from that time cut every year's growth back to a single eye. This applies to dwarfs, standards, bushes, and climbers. A tender Rose on a standard will take less harm if lifted and laid in "by the heels;" under shelter, than it will if it stand out; plant again in its proper place in the spring. Tender Roses may, nevertheless, if you approve of the appearance, be tied in close, and covered with moss, straw, or matting, or even with an oiled paper-cap. Cut off all fading flowers. It helps the remainder and prolongs the bloom, besides looking neat and clean. Strike all cuttings at the fall of the leaf in preference to any other time, and an ordinary border will do for them. China Roses that grow and bloom all the year under glass may be grafted or budded at any time, provided the stock be also China, and growing also.—*G. Glenny.*

GRAND NATIONAL ROSE SHOW.—The subscription list towards promoting this undertaking continues to lengthen, and we are pleased to be able to say that the prospects of a good exhibition appear to be very flattering, and the promises of support encouraging. We trust every one who is a friend to floriculture, whether a Rose-grower or not, will "cast in his mite," without loss of time. Particulars may be had of the Rev. Reynolds Hole, the Honorary Secretary, Caunton Manor, Newark, Notts., who will gladly receive subscriptions in aid of the show. A list will be published in our next, being unfortunately too late for the present number.



VACCINIUM SALIGNUM

The Floricultural Cabinet.

MAY, 1858.

ILLUSTRATION.

VACCINIUM SALIGNUM.

HAVING noticed this handsome evergreen *Vaccinium* in our "Notes on New and Select Plants," in the April Number of the *Cabinet*, it will be unnecessary to say much more respecting it here, farther than that it will probably require a temperate house for its culture; and being an epiphyte, should be grown on a log in the same manner as the epiphytal Orchids. From the singularity of its habit and great beauty, we have no doubt it will ere long become a great favourite.

HINTS FOR LAYING OUT THE GROUNDS OF SMALL VILLA RESIDENCES.

BY T RUTGER, ESQ.

IN the Preface to the 23rd Vol. of the *Cabinet* a favourable notice is given of the designs and gardens contributed by me, and given in the *Cabinet;* also, of several correspondents requesting a continuance of my contributions. This of course could not be otherwise than gratifying; at the same time I hope my designs since have met with equal favour, at least I have endeavoured to make them so. At the same time I disclaim all pretensions to offer them as perfect models for imitation, being well aware that the well-skilled landscape gardener may point out many deficiencies; and, indeed, were I to go through a revision of them, I should doubtless discover many alterations necessary in order to make them more perfect. There is one in particular that I wish to notice, namely, in the *Cabinet* for February in the present year, I should have added in the design for the Parsonage, at No. 11 in the reference, wherein is given a shed, the words "*for school-rooms and play-ground.*" Nevertheless, with all the imperfections which may be discovered by the skilled in landscape gardening, to the young aspirant after the art they may be of some service, in pointing out some of the first principles which should be attended to in laying out the grounds of villa residences, as well as for places of large dimensions. Supposing the ground given for laying out to be some five, ten, or twenty acres, more or less, the first thing to be attended to should be to make an accurate survey of the whole, with observations as to the surface, noticing if flat, undulated, or hilly; next marking out the proper site for the house, taking into consideration the line most convenient for a handsome approach to it, with a continuance of it to the stables.

The aspect of the house should also be considered, and to be situated so as to have the command of the best views that may be presented from it; and if water can be introduced, it should be so placed as to be seen at the best advantage with the surrounding scenery.

The out-door offices, when convenient, should be placed at the back of the house, screened off with shrubberies, with a walk to lead to the domestic offices, from which there should also be a walk to lead to the approach road through a shrubbery, to prevent the domestics from walking along the front to enter the premises. The stables and coach-house, with a yard in front and a dung-yard behind, should, if possible, be placed contiguous to the frame-ground and forcing department, from which the kitchen and fruit gardens should be entered, having an entrance to them through a shrubbery, by a walk from the domestic offices.

In laying out the grounds, the walks should be formed in the most graceful way, in gentle curves through the shrubbery, with open spaces for a sight to the lawns, or to interesting objects which may present themselves. Where a sudden turn or angle must be made, there should always be a reason for such turn or angle being necessary by some object or other being in its way, such as a favourite tree or clump, etc. Where the walks are free from shrubberies on its sides, they should be fringed round with clumps at some distance from each other, laid out with taste as to form, etc.; and where a sudden turn is necessary, should there be no object to cause it, a neat group of clumps may be resorted to, for flowers, particularly if near to the house. With regard to clumps on the lawns, much taste is required, and the symmetry which should be displayed in connection with each other should be studied. Single clumps placed at random on the lawns should be evaded; and with respect to the shrubs and trees to be introduced, they should be of the most choice kinds, and planted with judgment in regard to their size, etc., adapting them to their most appropriate situations. If a conservatory should be attached to the house, a convenient walk may lead to the flower and kitchen gardens, and the site of the flower garden should be made choice of with judgment, so as to harmonize with the other parts of the ground; and if no conservatory is attached to the house, one may be erected in the situation which may be considered as the most eligible part of the flower-garden. When the grounds are larger than may be wanted for the pleasure-ground, an invisible fence of some kind should be judiciously placed to separate them from the other parts of the premises, which division may be devoted for the grazing of cattle or of sheep, as may be desirable. In the pleasure-ground, sites should be made choice of for the erection of covered seats, alcoves, etc., and also for a pond and fountain for gold and silver fishes, if a convenient situation can be found for it.

In offering these hints, I would observe that they are intended more for small villa residences than for places of large dimensions.

ON THE CULTURE OF LUCULIA GRATISSIMA.

BY MR. J. SHORT, GARDENER TO W. SHAW, ESQ., EVERSHOLT.

I HAVE frequently had occasion to remark that this fine plant appears to be undergrown, and its capabilities generally unknown. I have given it considerable attention for some time past, and, therefore, consider I shall be rendering a service to the Floricultural world by giving the outlines of my practice and experience with this fine plant. The only difficulty the grower has to contend with is in propagation, and here he requires, generally, a few instructions. My plan is to select short-jointed pieces of the half-ripened wood, which I slip off in preference to cutting them with a knife, and insert them with a " heel," for such root much more readily than others. The soil that I prefer is peat, with about one-third sand, and I pot the cuttings in thumb-pots, singly; when put in, the soil must not be allowed to become dry, but should be kept in a due state of moisture, in a temperature averaging fifty-five degrees. They generally take a long time to root, but those put in in April may be found sufficiently rooted before winter to allow of their being removed to an airy position, and the loss will be found to be very slight if damp be guarded against. When spring comes round those that are well-rooted should be potted off into four-inch pots, and placed in a gentle, growing temperature, in bottom heat, which will induce a rapid growth. The natural habit of the *Luculia* is straggling, it is therefore desirable to have bushy plants, for which purpose the young stock will require to be frequently stopped-in. The foliage is liable to suffer if exposed to the direct rays of the sun, they should on this account be shaded, or placed in a shady part of the house. After the middle of July the plants should not be any longer stopped, or they will be liable to bloom weakly, and by the beginning of August they ought to be placed where they may have plenty of air and light, but without being exposed to the direct rays of the mid-day sun. I find a screen of "Tiffany" is the best thing in the world for the purpose. When in flower, the plants may be removed, if desired, to the window of the sitting-room, where, if guarded against damp, the flowers will remain in perfection for six weeks or more, scenting the entire apartment with a delicious odour.

As soon as the bloom is over, they may be cut in rather closely, and watered sparingly. When the plants have broken their buds again, and made a start for renewed growth, they will require re-potting, and may be treated as before recommended, although the second year they should have large pots for blooming in.

The thrip is very troublesome at times, as soon as one insect is observed let the plants be well syringed, for if it succeed in obtaining a footing on the plant you may as well consign it to the manure heap at once. The red-spider is sometimes also a pest to be guarded against, but is not so great a nuisance as the thrips.

ON THE PLEASURES OF GARDENING.

BY RUSTICUS.

FLOWERS and their charms, with the love of them, is one of the first impressions that the dawn of reason implants on the human mind, and is frequently observed, even in infancy, and happy are those parents of children in whose imaginations this chaste predilection is early evinced; it would be well to encourage and promote it by every indulgence—especially in the case of females—as gardening is to them a pursuit more likely to promote health and mental recreation than any other; it will, moreover, early inculcate a wholesome habit of thinking and reflection on subjects worthy to exercise the youthful mind, calculated to improve them, and train them to the study and observation of that most instructive volume—the grand book of Nature—whose study is most delightful, engaging, and improving.

The passion for flowers is one of the most enduring and permanent of all enjoyments. At the approach of each revolving spring we return anxiously to our favourite and loved pursuit; with joy and gratitude we perceive that what Thompson described as the "ethereal mildness" is come, that the glory of reviving nature has returned after the slumbers of winter, and gladly we hasten to watch the mysterious unfolding of the complicated and exquisitely-folded bud, and the expansion of the lovely petal.

In all ages and in all climes, "by saint, by savage, and by sage," the loveliness of flowers has been acknowledged. No sooner was the creation completed, than a garden was planted, and man placed therein "to dress and to keep the garden." Here, then, we have the very earliest testimony of Holy Writ in favour of this fascinating pursuit, and it was the earliest occupation assigned to man from the beginning.

What else is there so graceful, so intellectual, so fraught with whatever is wonderful and beautiful? The glory of Solomon, during whose reign the Hebrew nation was at its highest pitch of greatness, was not to be compared to "the lily of the field," no not even to one of them! There was one of the most renowned cities of antiquity, Babylon, rendered famous for its "hanging gardens," a series of terraces, one upon another. In Pliny's description of his beautiful garden in Tuscany, how readily do we trace the happiness and contentment, the solid and substantial enjoyment he found in following the intellectual pursuit he had retired to, and had so judiciously chosen. In his letter describing it (and it is the longest of them all) how clearly do we perceive that it was feelingly penned, and that he was speaking from the heart when he says, "I here enjoy a more profound retirement: all is calm and composed, which contributes, no less than the clear air and unclouded sky, to the health of body and cheerfulness of mind which I particularly enjoy here"— wise Pliny!

In mediæval times, and from the same cause, we find the noted cities of Aleppo and Damascus the theme of admiration of all travellers, both being "surrounded and encompassed with gardens."

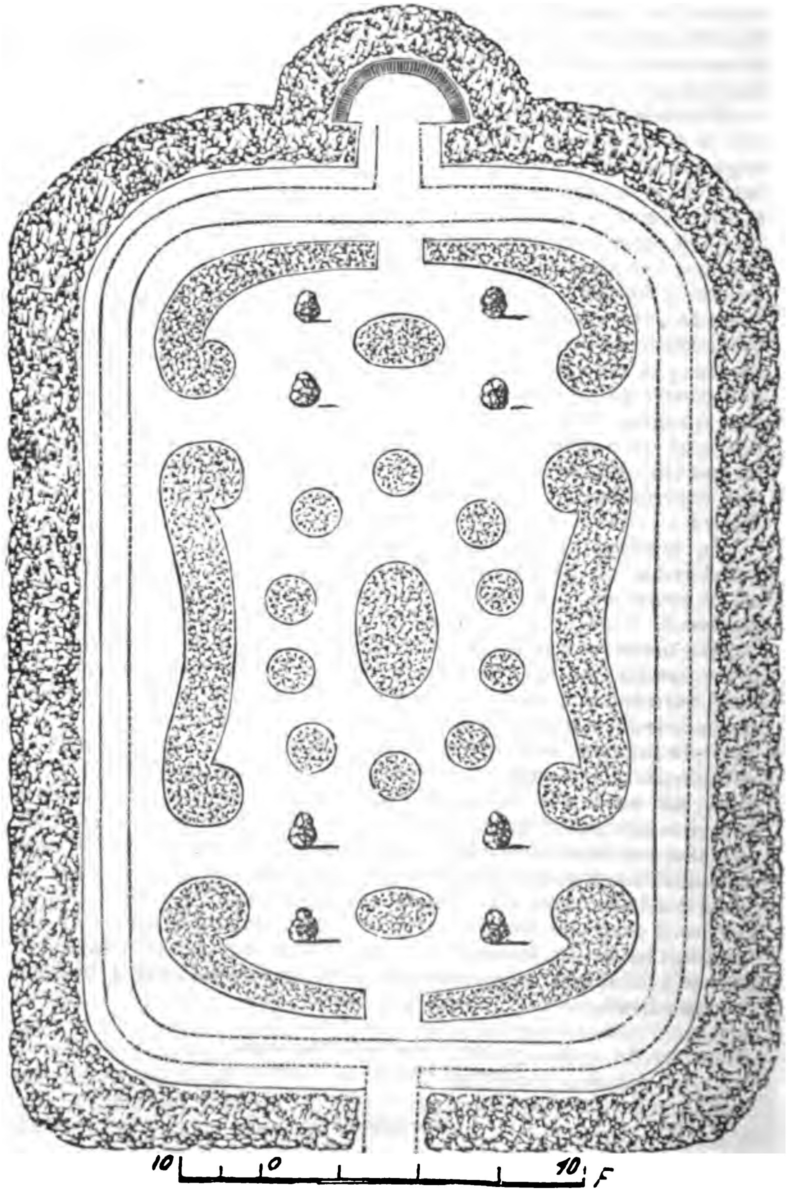
We never retrograde in the delightful pursuit of gardening, we never satiate, for here "no crude surfeit reigns;" we gaze on our floral beauties, and watch the development of a new seedling, or the expansion of the buds of a fresh flower with increasing delight every day. It has been said by one of old, "Crescit amor nummi," etc., if we substitute "florum" for "nummi," the comparison will hold good, but mark the difference—everything that is connected with flowers is calculated to impart elegance and refinement, as well as goodness and benevolence to the heart, while, on the other hand, the accumulation of wealth brings care and anxiety; we are tempted to hoard and hoard, and, like the misers of Quintin Matsys, to think and brood over our dollars, to count and re-count, to speculate on "adding house to house," to "pull down our barns and build greater," till at last we are compelled reluctantly to leave it behind, and after death

——————"would fain atone,
By giving then what's not our own."

* * *

DESIGN FOR A FLOWER-GARDEN TO BE LAID DOWN ON GRASS.

BY T. RUTGER, ESQ.



THE beds in the design here given are intended to be laid down on grass; the circular clumps for flowers in mass, and the remainder for flowers in variety. The shrubs on the grass should be choice evergreens. The oval in the centre may be either for a bed for flowers as delineated, or for a basin and fountain; a place for a seat, or for an alcove, is shown in the design. Inside the grass verge, in front of the shrubbery, flowers may be introduced, which will add considerably to the beauty of the garden.

* * *

CONSIDERATIONS WHY FLORISTS' FLOWERS DO NOT IMPROVE MORE RAPIDLY.

BY MR. GEORGE GLENNY.

IT has often been matter of surprise to large growers that they are unsuccessful with seedlings, while small cultivators, mere amateurs, with a few rods of ground, produce novelties which dealers are glad to buy. It is, therefore, a fair subject of inquiry, which I will endeavour to satisfy as well as my experience in such matters enables me. I have travelled many miles to see seedling flowers, gone over many nurseries, and not a few private establishments; and, from very close observation, as well in all these as in my own establishment, I have drawn my conclusions. It is well known, I presume, that all flowers which have been improved by cultivation have a tendency to go back to their simple or natural state. I have seen this so often, and so much, that it seems almost presumptuous to mention what others must have seen as well as myself; yet it is an important fact to impress on the minds of young florists; for this disposition to go back to their simple state is manifested many ways: first, it is seen by the presence of the most simple flowers and near approaches to the original state among seedlings, which are from seed that has been saved in the most careful way imaginable, from flowers of the best kind, and far removed from any of the original kind, or even of an inferior sort; secondly, it is seen in the great number of the simple or original kind that will be found among seed where only one of the original has been among scores of others, showing that the fertilizing principle of the original or simple kind is far more easily communicated than that of the latter or more removed sort. The first position I have proved, year after year, with the Pansy or Heartsease; for, after placing none but first-rate kinds together, such as it would seem impossible to beat at the time, and so far as I could observe, with great diligence exterminating everything at all inferior, I had, in spite of my care, about two per cent. of the original weed, as perfect as ever the original weed was, before the Heartsease was "elevated to the rank of a florist's flower." Secondly, I one season begged some pods of seed from a friend's bed of seedlings, in which he had allowed some very few of the originals to remain unmolested, and I took the seed from the best flowers in the bed. In the next season, when the seedlings came up, I feared there was but little good among them from their foliage; and when they bloomed there was not only nothing worth keeping, but a very large proportion, indeed, were nothing but what I had been expecting from their foliage—a complete return to the original weed. Here, therefore, it was manifest that from picked seeds, taken from the best flowers in a large collection, with scarcely half-a-dozen of the weeds among them, such is the disposition to degenerate (if I may be allowed the expression), much the greater part had gone completely back. For years have I repeated, or caused to be tried by some other person, these and similar experiments, and invariably with similar results. Proceeding from the Pansy to the Dahlia, I, like many others, anxious to raise all the seedlings I could, began to save seed from a general collection. Once, in my own place, and among friends, I raised and bloomed six thousand in a season. In my own place, the instant I could discover a single flower, long before it opened, I forked it up; and as soon as I could discover a semi-double one, or discover in any way that it was useless, I served it the same way. In this manner I got rid of all that were mischievous to the rest; but, alas for the remainder! there were not more than a dozen out of two thousand that I thought worth planting again, and this, too, at a period when anything full and double passed pretty well. But I had seen the Spring-field rival, and nothing short of that would satisfy me, so I need hardly say I remained dissatisfied. But the stocks at my two friends' were not served so cruelly; single and semi-double were alike preserved, so anxious were they that I should see all, that no one was permitted to remove a leaf. About half-a-dozen at one place, and twice as many at the other, were marked to try again, and the rest dug up and put in a hole to rot. But my friends, anxious to get a little seed, had picked the pods off those marked for further trial; and I had saved seed from my few, resolving to try them separate from the seed of the general collection. I did not raise more than a hundred plants the next year from seed of the selected seedlings, and about two thousand from the general collection. The large lot were fully as bad as the previous year's, nothing above an average middling flower, and not a dozen of those; while there were full one-third of the hundred perfectly double, some passable. I went to look at my friends' luck, and neither of them had a double flower, nor anything approaching it. Here, then, it was again manifest that the disposition to go back to the simple flower is so great, that two-thirds of the seed saved from double varieties, without a single one near them being permitted to open, produced only the single and semi-double kinds, while those saved from double flowers among single ones had not a double one in the lot. But it may be asked, how it comes to pass that in seed saved from the general collection so many went back as to leave hardly a score in two thousand? This is easily explained, and the explanation confirms the same fact—the disposition to return to their original form and fashion. My general collection contained all the best flowers in cultivation, and all the new flowers advertised. Now, the new flowers of that day were, for the most part, exceedingly bad—three-fourths, indeed, worthless; but one does not feel inclined to throw away half-grown plants without a full and fair trial. I, indeed, have so often seen a good one play tricks, and bloom half-way towards single a whole season, that, of course, I let every new one take its full chance; and in proportion to its ill-behaviour, took pains to develop its good qualities if possible. These single flowers, then, although they formed no kind of proportion to the large quantity I grew, were, nevertheless, enough to quite settle the quality of the seed saved from the best.

Nothing, then, can more clearly demonstrate the fact, that everything like a flower removed from its simple state, by cultivation, has a strong tendency to return to it, not only when there is no proportion of the original or simple kind near it, but also when, so far as our own ingenuity and diligence can be exercised, everything even at all like it has been removed. In the Carnation and Picotee, I have seen seed saved from a large collection of show varieties with, of course, not a single flower among them, produce hardly any but single flowers, and many among them with serrated edges, and as wild as needs be; while from a pod of seed saved from one solitary Picotee of the yellow ground kind, when there was not another in the whole garden, there were seventeen plants, and only three single among them. These were, however, all but one, deeply serrated, a quality, or rather deformity, belonging most especially to the wild or single flower. I have had the Auricula, both from seeds of my own and seedlings purchased by the score, in a small state, and it will hardly be conceived what a number proved the original "Bear's-ear," and "*Grand Present*," while others were hardly a remove from them, and scarcely one had property enough to save it from the dunghill. I have seen thousands of seedlings at Guyott's and Dickson's years ago, and where they had one advance, they had five hundred go-backs, from the sorts they were saved from. I do not know an exception in any flower that has been materially improved from its original simple state, to the disposition to go back. I am sure I have seen tens of thousands of Polyanthuses raised from seed, and never saw one in a thousand that was not worse than the parent, when the seed was saved from flowers in a general collection; and, indeed, when we recollect how few Polyanthuses there are at all esteemed, and how little they have advanced, although hundreds of people raise them, we need not doubt for an instant the care and watchfulness, the interest and excitement, that are required to keep up, not to say advance, the qualities of florists' flowers. The reason, then, why florists' flowers do not advance more rapidly are chiefly these:—1st. The disposition of flowers to go back, instead of advance. 2ndly. The practice of raising from seed indiscriminately gathered from flowers grown in great collections. 3rdly. The carelessness evinced by great dealers in so saving all their seed. To these causes may be attributed the slow pace at which floriculture proceeds, and this will enable us to judge why amateurs succeed better than large dealers in raising good seedlings. The amateur's ground, if not his means, is generally limited. This limitation necessarily curtails the extent of his collections. The small number he can grow makes him choice of his varieties, and enables him to pay the more attention. He saves his seed from the best among a small choice collection, and he reaps his reward in the recognition of a flower better than he has, or as good, and new in some feature. With all his care, however, he throws away nine out of ten, nineteen out of twenty, or it may be, ninety-nine out of a hundred. He finds a customer in the nurseryman, who cannot, for the life of him, improve his breed, because he is obliged to grow large collections, and the seed saved from large collections will not give him a good one in a thousand, and sometimes not in ten thousand. Why then, it may be asked, why then does floriculture not advance more rapidly, when it is shown that amateurs can and do advance it? The answer is very plain, easily understood, and not to be gainsayed. It is because even amateurs who raise seedlings are comparatively few, and too many of those who do are not sufficiently careful.

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WINDOW GARDENING FOR MAY.

BY MR. SHEPPARD, BURY.

MAY—perhaps the most delightful month of the whole year—is come at length, the "season of birds and bees and blossoms," the full maturity of spring-tide is arrived, and with it the florist finds himself engaged "heart and soul" in the diligent superintendence of his garden, and in making preparations to secure the "blaze of beauty" that in a few weeks more the aspect of his beds will wear. In-doors also, the true lover of nature will not fail to have a display of her "choicest gifts" in "flowers of all hues."

Among the very many good things that may be had in blossom at this delightful season in our windows, I would not forget to mention, in the first place, the *Gardenia radicans*, or Cape Jasmine, a very beautiful plant, well known, I would venture to assert, to most of the readers of the *Cabinet*. It is rather difficult to bloom, but those who have the assistance of a small greenhouse will be able to manage it well; and when nicely grown and adorned with a goodly show of its pretty blossoms it is admired by every one, and not for its flowers alone, but for its fine, rich foliage, on which account it is well adapted to mix with those showy flowers that have not much leaf themselves. When taken into the room from the greenhouse it should be placed at the part farthest from the fire, with a saucer beneath the pot; and when watered it would be advisable to let a little soak through into the saucer, which should not be allowed to get full however, but to the depth of about half an inch, which will be absorbed by the plant before the next day; or if it be not, then less water should be given, but the soil should never be allowed to get quite dry. Every facility should be afforded for the plant to receive the sun, and it will be more healthy, and look fresh at all times if the leaves and stems are lightly washed with a sponge every week, as it clears them from dust, which is very injurious to plants in general, and to the present one in particular. It should be kept in nearly as equable a temperature as possible, and if the above matters are attended to it will well repay the little trouble it has occasioned. Another Gardenia, *florida*, growing with a beautiful glossy foliage, and a larger, highly-scented blossom, may also be had in flower, and will do well under the same treatment. There are several varieties of *Boronia* very suitable for the window; of these *serrulata* is, perhaps, the best for the purpose, it merely requires attention to giving it a little water every day, and will continue to bear a profusion of its beautiful pink, starry flowers for a long time. Nice bushy plants should be secured by stopping them in at the proper time. *Disandra prostrata* is a very pretty, yellow-flowered little creeper, which may be placed at the side of a wire stage or on a shelf, where it will hang over the sides about a foot and a half, and form a really interesting object. It should have attention to watering whilst in bloom, and it would not be injurious also were a little to be allowed to stand in the saucer beneath it; but that depends very much on the situation where it is placed. *Helichrysums* are highly ornamental, and their "everlasting flowers" remain on a long time; there are several varieties, all most desirable plants. They should be watered sparingly. By the second week of the month the spring frosts will have vanished sufficiently to allow of placing *Mignonette* in boxes outside of the windows, and every one who can place a box in such a situation should never fail to have this charming scented plant in its accustomed place every season, being so universal a favourite that we cannot take a ride into or out of London, or any of the great towns of this country, along the railroads that run along on a level with the tops of the houses (as so many of them do), without observing the pretty little Reseda vegetating in many a cracked tea-pot outside the window of the humble apartment of the poor. For want of proper attention being given, it soon fades and dies however; it should have a little water about every other day, and occasionally a sprinkling over head in the evening. It should also be carefully noticed if the mould cracks, or separates from the sides of the box, for when this happens the sides and surface of the mould should be broken so as to fill it up, as this is one of the principal causes why Mignonette and many other plants grown in boxes do not flourish; for when there is ever so small an opening between the mould and the sides of the box, the water escapes thereby, and the soil is never thoroughly moistened. It is a good plan to have the boxes planted (if of suitable size) with other things besides Mignonette, and perhaps nothing else is so well adapted for this purpose as *Geraniums*, as by the time the former is past its best, the latter will be coming into bloom. *Rhodanthe Manglesii* is another very beautiful little plant, both in its growth and in its flowering, and like the Helichrysums requires very little water or attention while in bloom. *Saxifraga sarmentosa* is another creeper that is well fitted either for being suspended in an ornamental pot or for placing on the front of a stand, over which it will hang gracefully down. The foliage is ornamental, and its little white flowers interesting. It requires a liberal share of water, and would do with a little standing in the saucer, while in flower. I must not fail to recommend the common Musk plant, *Mimulus moschatus*, which looks so pretty when in flower, covered with its yellow blossoms, and yielding a scent that almost rivals that of the Mignonette. It will thrive in almost any situation, and if the seed-pods are picked off as soon as the flowers drop, the duration of the bloom will be considerably prolonged. *Saponaria ocymoides* is a very pretty hardy little plant, suitable for the outside of a window, with bright red flowers, growing from four to five inches high, and is deserving of being grown as a window-plant much more frequently than it is.

There are a great number of very ornamental plants, beside the before-named, that may be had to decorate the window this month; but space compels me to forbear mentioning any more. To see a nice selection of healthy plants in our dwelling-rooms, and filling the balconies outside is always pleasing, and is indicative of a refined mind; and when cultivated and tended by a heart signally alive to the exquisite beauty displayed in all the works of the "Giver of every good and perfect gift," afford a constant spring of one of the purest enjoyments, for, as Cowper truly says,

> "Happy who walks with Him! whom what he finds
> Of flavour or of scent, in fruit or flower,
> Or what he views of beautiful or grand
> In nature, from the broad majestic oak
> To the green blade that twinkles in the sun,
> Prompts with remembrance of a present God!
> His presence, who made all so fair, perceived,
> Makes all still fairer. As with Him no scene
> Is dreary, so with Him all seasons please."

ON THE CULTURE OF PRIMULA SINENSIS.

BY MR. W. EASTWOOD, HEALING PARK.

THE cultivation of this beautiful plant has already been noticed several times in the *Cabinet*. The following remarks, however, are intended to outline my system of management for well-grown specimen plants, as practised by myself for several years, and I may be permitted to say that nothing can surpass them, as far as has come under my observation.

I sow the seed in pots, about the middle of July, when I wish to obtain seedlings; but my general method of procedure is to increase them by cuttings, after having raised good sorts by seed; and I would recommend others to follow the same practice. In sowing, I sprinkle good seed rather thinly over the soil, pressing it in and levelling the surface with a piece of wood. I then sift a little fine mould over them from a sieve, cover with moss, water lightly, and place the pots in a damp pit; as soon as the seed germinates, and the young plants make their appearance, the moss is removed, otherwise they will be spoiled, or greatly injured. When the plants are up they should be watered with care and placed near the glass, guarded against cold draughts, but with plenty of air. About the middle of September they may be potted off singly in thumb-pots, in a light sandy soil,—half peat and half loam answers perfectly. When potted the plants may be returned to the pit, where they should be kept close until they are established in their new pots, when they may be removed to the greenhouse, or any cool place where they can be put near the glass. They require no further attention during the winter except a moderate supply of water. About the commencement of March they should be removed to a pit where they can be kept close, and should have a little warmth to encourage them to grow freely. When the young plants require shifting, pot them in the same soil as before, using six-inch pots. They will require shading during a few hours when the sun is powerful; but this will scarcely be necessary before May, when they ought to be ready for another shift, and this time I use a portion of well-decomposed cow-dung with the compost. During the summer a cool, damp pit is the best place for them, and they should have a liberal supply of water; the flower-stems should be pinched out as soon as they make their appearance. By the beginning of August they may have their final shift into large sized (twelve-inch) pots. Those intended for early flowering may be put into ten-inch pots, and the remainder into the larger sized ones, and this time a larger proportion of dung may be used with advantage in the compost. As the plants require a large share of drainage during their flowering period, provision should be made for carrying it off freely, for unless the drainage be efficient the plants will be rendered very unhealthy by the sour quality of the soil;

the latter should be used in a rough state, and liberally mixed with sharp sand. After re-potting, the plants should be returned to the pit, and will only require to be supplied with water as often as may be necessary.

Those plants intended for early flowering should not have their flower-stems pinched out after the beginning of September, and they may be removed to the greenhouse or parlour-window as soon as they are wanted; though such as are designed for blooming later may be kept in the pit as long as they can be conveniently guarded from damp and frost. During their flowering season, which may be prolonged from November to the beginning of May, they require to be kept near the glass, but placed where they can have abundance of air, and should be supplied plentifully with water, and occasionally with manure-water, taking care to avoid wetting the flowers. When they go out of bloom I reserve a few of the best for seed or cuttings, and throw the rest away. Cuttings may be put in any time during summer and autumn, provided they have a chance of being rooted before winter has fairly set in. The cuttings are apt to bleed and rot off if inserted immediately they are taken, it is best, therefore, to allow them to remain a day or two after they are taken off, before putting them in, to heal their wounds, which will prevent disappointment and loss.

ON ROCKWORK.

BY J. J., ABERGAVENNY.

IN planning out rockwork, the first thing is to imitate nature as far as possible. In order to follow out this, rockwork never looks so well as when constructed on a large scale, and made to cover a large space of ground. When we see it in smaller dimensions, it generally looks paltry, and, in nine instances out of twelve, decidedly bad. Rockwork is, generally speaking, inadmissible on a small scale, and quite out of place except as a means to obtain an end, which is the cultivation of rock or alpine plants. Where it is a subordinate feature of the garden, in such a case it may be allowable, but even then much care is requisite to make it look well. Piles of brick rubbish are mostly abominable contrivances, and have anything but a natural appearance, which is further heightened by pieces of small coral, sponges, busts, statues, etc., that are often placed on such erections. If a piece of ground is set apart for such a purpose as the growth of alpines and rock plants, nothing looks so well as stones—natural rock, which may be broken fragments, not *too small* however, placed together with due regard to scenic effect.

How often do we meet with a pile of brick rubbish, cinders, and flints, that looks contemptible, neither imitating nature nor following true art, and in small-frontage gardens especially nothing can look worse. It was only the other day that I passed the cottage of one who was evidently fond of flowers, but destitute of judgment, who had placed an almost cubical mass of half-burnt bricks in front of his door, on a bed of bare soil, cut in grass in the form of a lozenge, and on which the *Alyssum* was *intended* to grow. His garden contained a many scarce and beautiful bulbs, and was kept with much neatness; yet here was a glaring instance of false taste, few things looking more unsightly than a mere bare pile of half-burnt bricks.

Rockwork, to look well, must either imitate natural rock, or the ruins of some ancient pile of building; otherwise it should seem made purposely for the cultivation of alpine plants,—if for this purpose, the corner of a garden is the fittest place, and fragments of natural rock the most appropriate materials.

As to the outline of the pile it should invariably be irregular, instead of square or rounded off, as is so frequently the case. Even in Kew Gardens I have seen a piece set apart for the culture of Ferns under a north wall that followed the straight path of the walk with but moderate-sized rough stones, with even, smooth edge almost like a wall. Had the same consisted of an irregular mass of blocks of stone, such as surround the hermitage in the pleasure-grounds of the same establishment, the plants would have grown quite as well, and the effect would have been much better and more pleasing to the eye.

In every instance it is important to the finish of the rockwork to make it commence gradually, by inserting masses of stone whose tops just reach above the ground, instead of piling cinders, bricks, and stones as though they had been shot out of a cart; and instead of such a heterogenous mixture it is the best taste to adhere to one kind, and to produce the highest effect nothing looks better than stone of a grey tint.

Where the rockery is of limited dimensions, it may have partly an artificial character by being divided into little shelves, to accommodate it to the reception and growth of alpines, so as to hold a little earth; for, as I said before, nothing is worse than a pyramidal heap of cinders or bricks, with little or nothing growing on them, chiefly because, as so frequently happens, there is little or no provision made for retaining soil. And here I would observe that the conical or pyramidal form is the *worst* that could be adopted on a small scale, for the man of taste would scarcely be able to divine whether the object had been to imitate nature or merely to afford an accommodation for plants that grow naturally in such situations, and the proprietor might be open to censure for a poor attempt to imitate the natural appearance of rock. A corner of the garden where the stones are piled up judiciously in the angle of a wall, shows in itself a contrivance to afford a *nidus*, or place of reception for alpines alone; whilst a mere heap, consisting of a load or two, at most, in the centre of a grass plot, looks as though the proprietor had made an ineffectual attempt to imitate nature, which any man of taste would instantly repudiate.

Masses of roots intermixed with rockwork seldom look well. Even at the Crystal Palace a bank of root-work conjoined to rock-work is open to this objection, although the grounds, generally speaking, are laid out with so much taste and judgment.

In planting rockwork, a few shrubs may be admitted, such as Junipers, Savins, Irish Ivy, Pyracantha, Vacciniums, Arbor Vitæ, Vinca, and other evergreens. Deciduous shrubs as a main feature are to be avoided, with the exception of creepers, and for this reason alone, that during the winter season they have a very barren appearance.

Among spring-flowering plants the following may be introduced with good effect:—*Anemone Appenina* (blue), *Hepaticas* (various), *Arabis grandiflora* (variegated), *Aubrietia deltoidea* (purple), *A. purpurea* (purple), *Gentiana verna* (blue), *G. acaulis* (blue), *Alyssum saxatile* (yellow), *Primula auricula* (yellow, crimson, and purple), Common *Primrose* (various), *Draba azoides* (yellow), *Saxifraga cæspitosa* (white), *S. oppositifolia* (red). For summer blooming—*Anemone Japonica* (rose), *Aquilegia glandulosa* (blue), *A. Canadensis* (red and yellow), *A. grandiflora, var. bicolor* (blue and white), *Campanula media* (blue), *C. nobilis* (maroon), *C. pumila* (blue and white), *C. pulla* (dark blue), *Dianthus deltoides* (pink), *Dielytra spectabilis* (pink), *Digitalis purpurea* (crimson), *Crucianella stylosa* (pink), *Statice tartarica* (blue or lavender), *Trollius Asiaticus* (yellow), *T. europeus* (yellow), and some dwarf *Verbenas*, which make a good show until cut down by early frosts. For winter, the Christmas Rose (*Helleborus*) in its varieties makes a good display, also the Winter Aconite (*Eranthus hyemalis*), the Snowdrop (*Galanthus nivalis*), and some of the *Crocuses*. Many varieties of *Ferns* look well in such a situation at all times, and some *Saxifragas* and *Sedums*. A few plants of *Yucca* may be introduced with advantage, as well as *Sempervivums*, and the Common Indian Fig (*Opuntia ficus Indicus*); *Verbascum thapsus* is well adapted to such a situation, and looks well intermixed with "Periwinckle," and may be sown on the spot.

It must be observed that dwarf plants should always occupy the foreground, and tall plants the back; unless this be attended to, a small rockery loses half its effect. If joined to a piece of water, some aquatics may be introduced, and on the margin of the pond or stream a clump or two of *Gynerium argenteum* should, on no account, be omitted, along with bulrushes and other tall-growing reeds. There are few plants that look more effectual than the Gynerium in such a situation.

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CLIANTHUS PUNICEUS.—Seeing the query respecting this plant in the April number, I beg to state, for the information of your correspondent, that I have a very nice plant growing on a south wall that has had no protection whatever; the situation is a warm one, however, and two miles from Weymouth, on the south coast.—*A Subscriber.*

ON BLOOMING INGA PULCHERRIMA.

BY AN OLD SUBSCRIBER.

THERE is a general complaint of the difficulty in blooming this beautiful plant, which, in my opinion, is caused by treating it too kindly. Young plants never blossom freely, I would therefore recommend that they should be encouraged to grow, and when large, confine the roots and give poor soil. When the growth is completed each season, give very little water, and keep it cool through the winter, only just sufficient to exclude frost. A plant that I have treated thus has flowered well with me for two or three seasons past, and fully warrants me in the assertion that the usual practice is to serve it too well, and spoil it by kindness. I have never before seen a plant of it that bloomed so well as mine, indeed, it has been almost covered with its graceful blossoms, and is then as attractive as any plant in the stove.

GLEANINGS AMONGST THE HARDY PERENNIAL PLANTS.

BY OLIO.

(Continued from page 68.)

MANY years ago, I remember *Monaida fistulosa* used to be seen in gardens; the variety I am now describing might be called major, and is distinguished by its crimson blossoms and the sweetness of its foliage; its floral leaves are striped with purple; the *Fistulosa* grows wild in Canada, the improved plant was introduced from Holland. The large yellow flowers of *Hypericum calycinum* greet us from July to September; it is a native of the vicinity of Constantinople, and useful for growing under trees, or to cover a bank. Switzerland produces *Saponaria ocymoides,* which is also found in France, Italy, and Corinthia, liking a rocky situation; its small, numerous, elegant, star-like, pink blossoms, render it ornamental in May, June, and July. North America is the locality for wild specimens of *Coreopsis verticillata;* it attains a considerable height, and exhibits its showy yellow flowers with brown eye, from July to October. "Clayton" (as quoted by Curtis in the *Botanical Magazine,* to which I am so much indebted, both for aid in these researches, and for my knowledge of plants), "remarks that the petals, though of a yellow colour, are used by the inhabitants to dye cloth red." The drooping blossoms of *Pulmonaria Virginica* are seen upon the mountains of most parts of North America, and for several years decorated the garden at Fulham of the Bishop of London. It exhibits in April its reddish-purple flowers, which when fully open, are of a light bright blue; the foliage is blueish green; it requires a pure air and a little shelter from cold winds, which are apt to prevail when it is in bloom. *Sanguinaria Canadensis* is found in the woods of Canada, its flower appears in April and is a delicate white with yellow eye, and its glaucous leaf veined with pale brown, renders it an object of interest to watch its progress, after emerging from the ground; from the juice issuing from its knobby roots, which is of a bright red colour, its name is derived; the Indians are said to use this liquid to paint themselves with. The pale blue petals of *Phlox divaricata* expand in May, it is a native of North America; rarely ripening its seeds in our climate, but is increased by cuttings and layers, and is suitable for rockwork; as is also the minute *Draba aizoides*, which exhibits its little yellow flowers in March, and is found on the German Alps. *Lamium orvala* adorns with its large pink and white blossoms the woods of Italy and Hungary, and flowers with us in April. From the south of Europe, we have obtained *Iris sambucina*, deriving its name from the scent of its flowers, resembling that of those of the Elder; it is one of the tallest and handsomest of the genus, attaining in rich, moist soil, the height of three feet or more; its prevailing tints are purple, pink, and yellow. *Primula marginata*, from the Alps, blooms in March and April, and is a delicate little plant with small purple flowers and yellow eye, with an agreeable musky scent. At Hampton Court, a few years since, I saw a bed planted with *Saxifraga crassifolia*, and was pleased to see it thus brought into notice; the blossoming stems, when grown in rich, moist soil, rise from one to three feet high, supporting a large bunch of pendulous purple flowers, expanding in April and May; the leaves are large and thick, on their upper surface they are of a bright shining green, and red underneath; it grows wild on the Alps of Siberia. At the end of May and beginning of June, *Aster Alpinus* from the Austrian Alps, greets the eye with its large and showy blossoms; they are purple with yellow centre, and rarely aspire beyond the height of eight or nine inches, being much lower in their native region; it prefers a moist soil. *Lupinus perennis*, from Virginia, shows its pale blue flowers from May to July, succeeding best in a dry situation. *Geranium angulatum*, so named from the angular appearance of its stalk, has flesh-coloured blossoms marked with deeper red veins, its buds open in May and frequently again in autumn; its history is unknown. The small double white flowers of *Ranunculus aconitifolius*, or Fair Maids of France, expand in May or June; it is found on the Alps, its leaves are apt to be injured by a very small maggot, which feeds between their coats. During most of the summer the rosy-purple, mimulus-like flowers of *Melissa grandiflora* embellish the garden; it grows spontaneously in the mountainous parts of France, Italy, and Germany; the leaves have the scent of balm when bruised; it rarely exceeds a foot in height. *Sedum populifolium* was discovered by Professor Pallas, in Siberia; it leaves are flat and deciduous, and in the sun (as also the stalks), are of a bright red colour; its small, clustered, numerous, pale purple blossoms, are in perfection in July and August. Planted in a moist soil, and shady situation, the lively purple flowers of *Drawcephalum denticulatum*, are seen to advantage in August and September; it was received from Carolina. The rare *Cypripedium album* is but little known, and is named from the delicate whiteness of its upper petals; the lower, or slipper part of the blossom, is a delicate pink and white, and two yellow spotted lappels depend from the base of the petals; it inhabits the woods of North America.

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NOTES ON NEW AND SELECT PLANTS.

CALANTHE DOMINII; *var.* HYBRIDA. Nat. Ord. *Orchideæ.*—This hybrid Calanthe was raised in Messrs. Veitch's nursery at Exeter, by Mr. Dominy, from seed between *C. masuca* and *C. furcata;* in two years the seedlings flowered, and the present is one of the hybrids raised. Unlike *C. masuca*, it is a free-flowering variety, and very pretty. The prevailing colour is purple, the labellum being crimson, and the upper side of the petals and sepals creamy white, the under sides bluish purple. Mr. Dominy is, we believe, the first to raise *hybrid* Orchids. (*Bot. Mag.*, 5042.)

34. NIPHÆA ALBO-LINEATA; *var.* RETICULATA.—The leaves of this variety are remote, but beautifully variegated. The flowers are of a lilac blue, borne in considerable numbers, and very ornamental. (*Bot. Mag.*, 5043.)

35. CAMELLIA ROSÆFLORA.—This handsome, small-flowered, single Camellia has been long cultivated at Kew, under the name of *C. Euryoides*, incorrectly however. The present plant was a stock on which the Chinese nurserymen graft their varieties of *C. Japonica.* The Camellia brought to England by Mr. Potts in 1822, grafted on this stock, died, and the same having occurred to a plant brought over in 1824 by Mr. J. D. Parks, now of Dartford, the present species shot forth. It is a shrub about three feet high, of more lax and straggling habit than the common *C. Japonica;* the branches clothed with a smooth brown bark, and the leaves rather more serrate than in the aforenamed species, of a dark glossy green. The flowers are axillary, solitary, or seldom two together, measuring about an inch or an inch and a half across, of a light pink colour, and single. (*Bot. Mag.*, 5044.)

36. PENTSTEMON JAFFRAYANUS. Nat. Ord. *Scrophularineæ.*—Raised from seed sent to Messrs. Veitch by their collector, Mr. Lobb, in August, 1857, from California. It is calculated to make a very acceptable plant for "bedding out," and produces a succession of its pretty blossoms for a long time in the summer months. The stem is erect, about a foot high, and the young stalks tinged with red; the flowers are borne in a loose panicle, and are an inch and a quarter long, of a rich blue, red at the base and in the throat. (*Bot. Mag.*, 5045.)

37. Keffersteinia graminea. Nat. Ord. *Orchideæ.* Syn. *Zygopetalon gramineum.*—An inhabitant of Popayan, on the western side of the Andes, where it was discovered by Hartweg, and has since been found by Linden and others in the Caraccas. Its leaves rise directly from the roots, and spread in a fan-shaped manner. The flowers are of a dirty yellow colour, more or less spotted with dark brown; they are about an inch and a quarter in diameter. (*Bot. Mag.*, 5046.)

38. Begonia Wageneriana. Nat. Ord. *Begoniaceæ.*—A free-blooming and very long-flowering Begonia, introduced by Mr. Wagener to the Royal Botanic Gardens, Berlin, whence plants have been forwarded to the Kew establishment. The flowers are very small, but borne in large white panicles, and the foliage is of a deep yellow-green; the peduncles and petioles are bright red, and render it tolerably distinct from other species. It blooms for a long time in the stove in spring and summer. (*Bot. Mag.*, 5047.)

39. Cuscuta Californica. Nat. Ord. *Convolvulaceæ.*—A delicate little parasite, raised in the Horticultural Gardens from seeds sent over by Mr. Hartweg from California. The flowers are white, and small sized; indeed the whole plant may be said to possess no more than a botanical interest. Seed may be sown along with those of a soft-stemmed annual in a pot, and placed in the frame; when large enough to remove, the plant may be placed in the same pot as a Pelargonium or Lotus Jacobæa, to which it will then attach itself. (*Hort. Soc. Journ.*)

40. Begonia Rex. Nat. Ord. *Begoniaceæ.*—No description can give an adequate idea of this, the most striking of all the Begonias we have seen, which throws every other into the shade, and fully justifies its specific name, being decidedly the "King" of this fine tribe. Its great attraction consists in its splendid foliage, which measures about ten inches across, the centre of a deep olive-green, reflecting a metallic blue, surrounded by a broad silvery white band, which is again encompassed with a wide edge of olive-green. The flowers are also of large size, and rose-coloured. It is a native of Assam, where it inhabits the temperate region of the Himalayas, and was discovered by Mr. Simons. Messrs. Rollison possess the stock, and are about to send it out, we believe, during the present month.

41. Begonia Lazuli. Nat. Ord. *Begoniaceæ.*—Without any pretensions to be compared to the preceding species, this is nevertheless a plant of great beauty, and merits a place in every collection; its name has been given from a resemblance between the blue tinge of its leaves and the colour of the precious stone known as *Lapis Lazuli*, the upper surface of its large leaves being, in fact, of a metallic or mineral blue. The blossoms are yellow, and similar in size and appearance to those of *B. xanthina.* It was discovered by the same collector as the preceding, and inhabits the same district.

42. Boehmeria argentea. Nat. Ord. *Urticeæ.*—A remarkably ornamental plant belonging to the Nettle tribe, discovered in 1856 by Mr. Ghiesbreght, in the forests of Chiapas in Mexico. The leaves

are alternate, ovate, longly acuminate, attaining about two feet in length, and nearly half as much across in their broadest part; their upper surface is of a light green, covered with large pustules or blisters of a silvery grey tinge; on the under side the nerves are of a reddish brown. It requires a moist atmosphere, and a shady place in the stove, to grow it well.

43. Campylobotrys argyroneura. Nat. Ord. *Rubiaceæ*—A charming little species, growing six or eight inches high, and closely allied to *C. discolor*, but distinguished by the silvery nervures of the leaf, the edges of which are (especially in the case of the young ones) margined with rose, and fringed with ciliæ of the same colour; their upper surface is of a fine olive or brownish green, with a satiny appearance. It will be cultivated chiefly for its beauty as a plant with ornamental foliage. From Chiapas, where it was detected through the indefatigable zeal of our friend Mr. Ghiesbreght.

QUESTIONS, ANSWERS, AND REMARKS.

Heintzia tigrina.—I have had a fine specimen of this ornamental plant in my stove for three years, but cannot succeed in making it flower well; my gardener evidently is at fault with it. Can you help us with any suggestions for its proper treatment?—*S. P., Whitehaven.* [This is a succulent evergreen Gesnerad, from Caraccas; it requires liberal stove treatment, and with a little management may be made to produce its handsomely spotted flowers very freely. It requires a light but rather rich soil, and while growing a moist atmosphere; young plants grown quickly flower in much greater profusion than older ones. For the rest treat it just as you would a Gesneria.—Ed.]

Bignonia venusta.—What is the best and most approved plan of treatment for this fine stove climber? My gardener appears to fail in producing a good show of bloom; it is planted in a large box, in a corner of a pine-stove.—*A Country Clergyman.* [Your plant has too much "pot-room." If you confine the roots more, and give it poor soil, you will have no reason to complain of a want of bloom. It should have a good supply of water during the growing season; keep the temperature at that time about 75° by day and 10° less at night. In autumn it requires to be cut in rather freely, as bloom is produced on shoots made the same year. The branches should be spread out so as to cover a trellis, to show the full effect, and allow plenty of light to get to the leaves, instead of being tied in a bundle, as is often the case.—Ed.]

Plants to Grow on a Wall.—I have an old wall, on which I am desirous of planting something that will grow, and look pretty. If the Editor, or any of the Correspondents of the *Cabinet*, would assist me with a list of suitable things, I should take it as a favour conferred on—*A Subscriber from the First.* [Wallflowers may be sown; they readily establish themselves on old walls, as also Snapdragons or Antirrhinums. Many varieties of Stonecrops are well adapted for the purpose, especially Sedum acre, S. saxatile, and S. rupestre; all look well in such a situation. The Houseleek (Sempervivum tectorum) soon affixes itself, and large patches of it intermixed with Sedums make a pretty effect. One of the most attractive little creepers is Linaria cymbalaria; this will run along, or grow in the chinks along the side, hanging in large tufts, and is a delightful little plant when in flower. Several ferns may be established, especially the Wall Rue, Asplenium ruta-muraria, and Polypodium vulgare. Erinus alpinus may be sown, and makes quite a show with its pretty pinkish-purple blossoms; the same may be said of Aubrietia purpurea. Cotyledon umbilicus does very well with a little soil, as also Euphorbia portlandica, several Saxifragas, Thymus serpyllum (which is very pretty in such a situation), and Verbascum thapsus, the latter growing readily from seed. A plant of the Indian Fig (Opuntia ficus Indicus) will stand the frost very well, and make a quaint appearance; as also the Yuccas, which may have a hole made for their accommodation, and a little soil to grow in. These are all the plants we can think of at the present; perhaps some Subscriber may suggest others that he has seen in such situations. Many an old wall may be made interesting by being planted, and indeed is a very suitable place for a number of alpines.—Ed.]

Climbers for a Greenhouse.—A constant Subscriber to the *Cabinet* would feel greatly obliged by the recommendation of three or four good, long-blooming Roses for training up the back trellis of a greenhouse; also two or three other pretty climbers for the same.—*T. M. J.* [The Noisettes are fine Roses, and some of them make good climbers, and flower for a long time and late in the year. Select from the following:—Solfaterre, large, sulphur-yellow; Lamarque, sulphur-yellow, very large and full; Caroline Marniesse, creamy-white, in large clusters; Pourpre de Tyre, rich violet-crimson, large and full; Du Luxembourg, rosy lilac, with deep red centre, large and very fine; La Biché, pale flesh, fine; Desprez à fleur jaune, buff, sulphur, and red, large and highly fragrant; and Fortune's double yellow. Other climbers we would recommend are Cobæa scandens, Lophospermum spectabile, Calampelis scaber, Clematis Siebaldii, Begonia Capensis, Tecoma Jasminoides, Maurandya Barclayana, and Barclayana alba; Mandevilleæ suaveolens; Passiflora cœrulea grandiflora, and edulis; Solanum Jasminoides, Sollya heterophylla, Tacsonia manicata, and various Tropæolums.—Ed.]

Nurserymen's Catalogues.—There can scarcely be anything more valuable or interesting to those who are engaged in the delightful pursuit of cultivating flowers than to have a record of prices and plants; this may be formed by preserving and having bound together all the catalogues of the various nurserymen and florists which they may be able to obtain, instead of throwing them away in the waste paper basket, after serving a temporary purpose, as is frequently the case. We have a very extensive collection ourselves, and are desirous of having it increased. Any of our subscribers who may be able to oblige the Editor with spare copies of old catalogues, would confer a favour; as among them there may be some that would help to complete a set of books, to us of great value. As a help to purchasers of plants we intend to notice in the *Cabinet* such nurserymen's catalogues of the current date as may be sent us, with a brief notice of their contents. In accordance with this plan, we now draw the attention of our readers to the catalogue of Mr. William Holcroft, nurseryman, of Upholland, near Wigan, comprising principally Herbaceous Plants, of which the collection appears to be most extensive, and to include many rare things. We have also received, since our last, the catalogues of Messrs. Whitehead and Hammond, Oldham; Mr. Walton, Marsden, near Burnley; M. Linden, of Brussels, and Mr. Brigden, of the Railway Arcade, London Bridge. Messrs. Whitehead and Hammond's is almost exclusively devoted to florists' flowers, and especially Dahlias, Carnations, Picotees, and Pinks, of which there appears to be few good sorts that they do not possess. Mr. Walton's spring catalogue contains a large miscellaneous stock, Dahlias, Fuchsias, Verbenas, and the usual bedding plants, together with Gesnerias, Roses, &c. M. Linden's French catalogue is a valuable list of many new things, as also of stove and greenhouse plants in general. We would advise intending purchasers to send for a copy. Mr. Brigden's seed catalogue is extensive and well arranged. This gentleman has taken up the Aquarium business as well as that of a seedsman, and supplies not only the cases but also plants, insects, animals, and fish for stocking them. All who are interested in the pleasing recreation of attending to an Aquarium or Vivarium, should pay Mr. Brigden a visit, and we are much mistaken if they be not highly gratified.

Provincial Horticultural Societies.—We have received the schedule of prizes of the Stamford Horticultural Society, which evinces much spirit amongst the supporters of floriculture in that town and neighbourhood, and deservedly entitle it to rank as one of the most useful of the Midland Societies. The prizes are numerous, and amongst them we are pleased to observe that the lady patroness, the Marchioness of

Exeter, offers one for the most choice and elegant bouquet made up by any lady who is a subscriber, or a member of the family of any subscriber; two silver cups are offered for Roses, and a silver medal for the best device in flowers; five pounds is offered for the best collection of twelve stove or greenhouse plants, and other liberal sums for flowers and fruits, including prizes for collections of British plants, and for cottagers' produce. The first exhibition will take place July 7th, in the grounds of O. Edmonds, Esq. At the second show, September 8th, prizes are offered for Dahlias, etc., and among them a silver medal for the best Dahlia in the room. Manchester is not behind in the judgment displayed in the allotment of the numerous prizes offered by its Horticultural Society, commencing with £2 10s. for the best collection of miscellaneous plants, not less than eight in number of sorts. The first exhibition will take place May 15th, the second during the last week in June, and the third about the end of August. We have also received the schedule of the Colchester Chrysanthemum Society, in which we find a silver medal is to be given for the best three cut blooms.

New Dahlia, Sir Colin Campbell.—Stevenson's Sir Colin Campbell is one of the best of its class, which I perceive is omitted all mention of by your correspondent G. G., in the April number. From my own observation I can assert, that it is a first-class flower, and obtained the premier prize at the Rochdale Floral and Horticultural Exhibition, the only place where it has been exhibited. The colour is a deep rich maroon, the size rather above the medium, the outline very fine, petals smooth, well arranged, and centre full. I send you my name.—*J. W.*

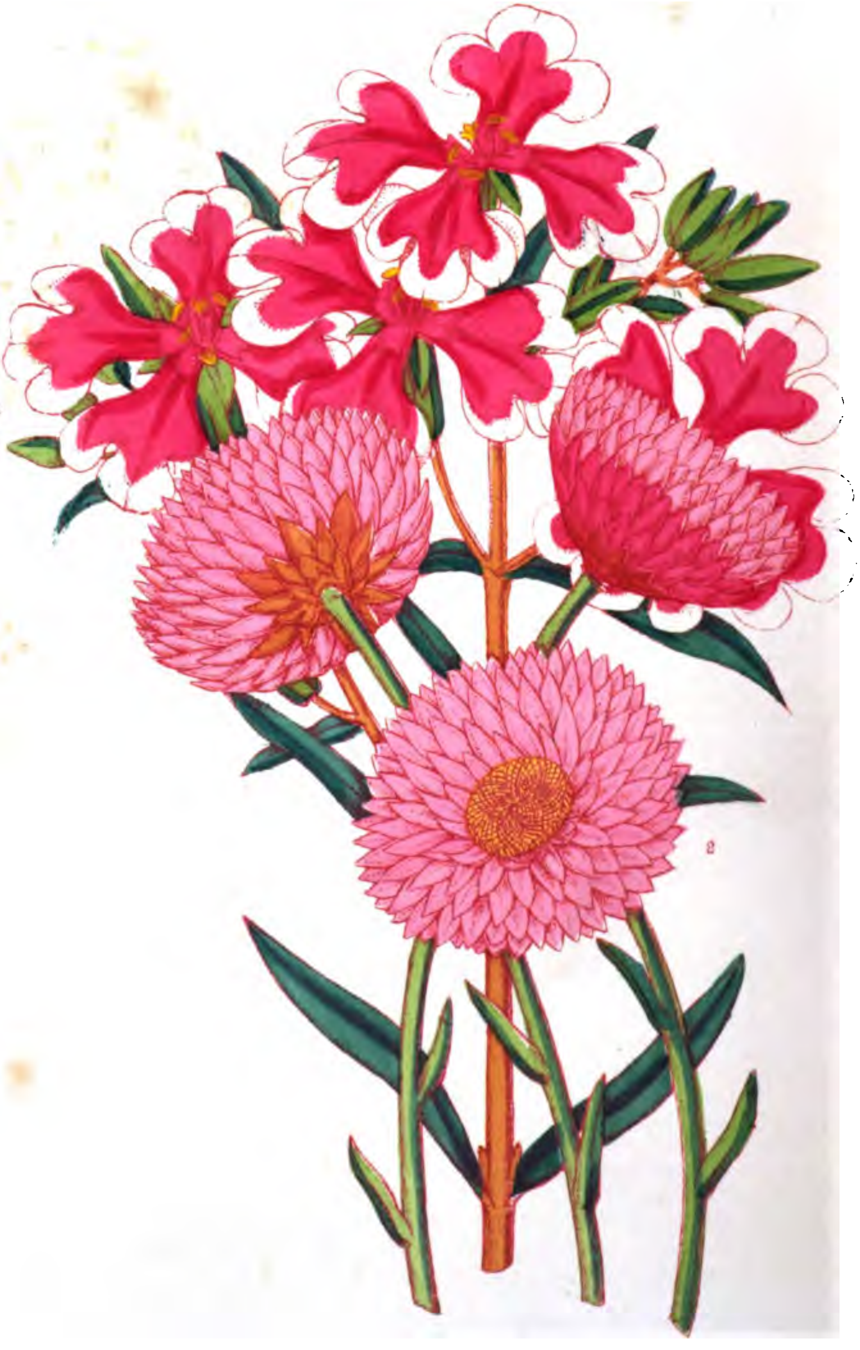
The Pink.—Never grow a Pink in poor soil, for it is not like some flowers that merely grow less in such circumstances, but it actually loses its character. Prefer cow-dung rather than that of horses; whichever is used, however, should be fairly rotted into mould. Let the loam you use be that obtained by laying common turves, cut as if for lawns, to rot. It is good at two years old. Use two parts loam, and one part dung; and make your bed eighteen inches deep. Plant nine inches apart, as soon after July as you can get your plants. Never let more than one stem go up to each plant, nor more than two buds be left on to bloom; any very crowded flowers excepted. When in flower take off the bottom shoots for pipings. The top three or four joints are to be used. Mix up some of the proper Pink soil, with all the stones sifted out: stick the pipings half an inch in the compost and water freely, cover close with a shallow hand-glass and shade them. As the bloom-pods swell, tie them round the middle with a piece of matting, to prevent the calyx from bursting. As the petals develope themselves, assist them down into their places, and shade them always from the hot sun. Give them, from the time they swell their pods to bursting, liquid manure (a gallon of decomposed cow-dung to five gallons of water) once to three plain waterings. Never leave in the bloom a self-coloured petal, take it out when you first see it; for one of these will condemn a whole stand of flowers. Never let your pipings under the glass get dry; for it is certain destruction. When rooted, remove them into their permanent beds, or into store beds, three inches apart in the row, and the rows six inches. Never delay planting till the spring, if you can get your plants in autumn. The sooner they are settled down the finer they bloom.—*Geo. Glenny.*

The Crystal Palace Floral Bazaar.—The announcement of a Flower Show has ever been found an attractive intimation to the visitors of the Crystal Palace, and the Directors act wisely, therefore, in not allowing any lengthened period to pass over without catering for the floral predilections of their patrons. We have only to remark the interest excited by exhibitions of this class, and the numerous attendance of gay and elegantly-attired visitors, to be assured that they contribute a feature that cannot be dispensed with, and on which every effort to develope their intrinsic beauty is likely to be well bestowed. It should be mentioned, however, that the "Floral Bazaar," which opened on the 14th of April, had practical purpose in view beyond the mere display of "spring flowers" in all their attractive varieties, which was no other than to ascertain whether the purchasers of bouquets, etc., would muster numerously enough to warrant the belief that such exhibitions could be turned to permanent account in the way of remuneration to the growers. Judging from the frequent sales effected, we are disposed to think this question may be solved in the affirmative. On the day of opening, the keen, cutting winds which played about the Palace were a rather unfavourable accompanimen to the exhibition, but the weather was as fine and genial as could be desired on the 15th, and the attendance was proportionately large, comprising many members of the fashionable and aristocratic circles. The arrangements did credit to Mr. Eyles, under whose direction the "Floral Bazaar" was conducted with every regard to the general convenience both of spectators and exhibitors. Among the most conspicuous of the growers we may enumerate Mr. Smith, of Dulwich; Mr. Halley, Blackheath; Mr. Woodruffe, of Harrow-road; Mr. Standish, of Bagshot; Messrs. Hay and Co., Newington Butts; Mr. J. Attwood, Coldharbour-road; Mr. Ponsford; Mr. Wood, Beulah Spa; and Messrs. Maule, of Bristol. Collections of plants, in one instance numbering 1,200, in others 300 to 400, were contributed by Mr. Smith, Mr. Woodruffe, and Mr. Pfersdorff, of Kensal-green, while the prices ranged chiefly from 1*s.* 6*d.* to 3*s.* 6*d.*; choice specimens of Azaleas and Camellias of course having a much higher pecuniary value. No one could fail to be struck with the brilliant display of Azaleas, Rhododendrons, Camellias, and other things, in the collection of Mr. Standish, and likewise in that of Mr. Halley; the display of Cacti by Mr. Pfersdorff being hardly less captivating. The "bouquets" of Messrs. Maule were, moreover, not only attractive, but decidedly cheap; and, looking at the entire exhibition, the competitive principle, as far as the growers are concerned, had evidently worked well. Ornamental flower-pots, in several varieties, also formed an appropriate feature of the display, and drew a fair share of critical attention. We are glad to hear that the sale of flowers has so greatly exceeded the anticipations of the exhibitors as justified the continuance of the Bazaar until the 17th of April, instead of closing as originally announced. Whether the problem of a permanent demand for flowers and bouquets at the Palace has been demonstrated or not, the lovers of floricultural excellence have at least had every reason to be satisfied. The number of visitors at the Palace on the first day numbered 5,491.

MODEL BOTHY ON LORD PANMURE'S ESTATE.—The other day we had an opportunity of inspecting a model bothy, recently built for the gardeners on the Panmure estate, containing all the comforts and accommodation which unmarried men not living in families could desire. The bothy is constructed for four young men, but there is abundance of room and accommodation for double that number. On the ground floor there is a large kitchen, having tables, chairs, cupboards, and other conveniences; a boiler and oven, with requisites for cooking. Adjoining the kitchen is a large store-room, together with a commodious sitting-room, having all necessary furnishing. The sitting-room is supplied with a select and valuable little library, handsomely bound. In the upper story there are four comfortable bed-rooms—one for each man—having stand-beds, chairs, tables, etc. There is a bath-room in the hot-houses adjoining for the use of the men, which is much resorted to. An elderly woman attends to the comforts of the young men, but does not reside in the house.—*Arbroath Guide.*

PARISIAN HORTICULTURAL SOCIETY.—Numerous workmen are at present occupied at the Palace of Industry in the Champs-Elysées, in preparing for the Exhibition of the Imperial and Central Horticultural Society, which is to take place May 12th—27th. The nave of the building, which is nearly an acre in extent, is being transformed into a garden, laid out in the English style. Several thousands of yards of green sward are being brought from the plains of Issy and Auteuil, to form grassplots and borders to the beds where the different shrubs and flowers are to be arranged, and the decoration will be rendered complete, by the introduction of a serpentine stream of water, running through the place, and affording an opportunity for the exhibition of a number of rare aquatic plants.

PRIMULA MOLLIS.—This is a most beautiful plant with large cordate leaves of from two to three inches diameter, covered with soft hairs. From the centre of this large tuft of leaves springs up the flower stem, which attains about a foot high, and all along it are whorls of handsome flowers of a fine purple colour, which last a long time in perfection, and as the flower stem grows higher, the blossoms keep coming out. It is a really beautiful thing, and should be in everybody's garden.—*W. Holcroft, Upholland.*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The Floricultural Cabinet.

JUNE, 1859.

ILLUSTRATIONS.

No. I.—CLARKIA PULCHELLA, *var.* MARGINATA.
II.—ACROCLINIUM ROSEUM.

WE this month place before our readers figures of two annuals of recent introduction to our gardens, and each of them possessing no little amount of attraction. For the first, *Clarkia pulchella,* var. *marginata,* we are indebted to Messrs. James Carter & Co., the well-known seedsmen of High Holborn, for bringing it into notice. It is simply a garden variety, first raised with seeds from *C. pulchella.* In patches, alternating with that species and its white variety, the present makes a very pretty contrast, combining, as it does, the colours of the two.

Acroclinium roseum is a fine, half-hardy annual from the Swan River Colony, belonging to that class of plants known as *everlastings;* it grows about one foot high, and produces many of its flower stems from one root; its blossoms are of a bright clear rose colour, and resemble those of the well known *Rhodanthe Manglesii,* but are considerably larger, and more showy. It is of easy culture, and is found to flourish best in a mixture of peat and loam, but will prosper in any friable garden soil.

The two annuals now referred to are deserving of a place in every flower garden or parterre. Being of moderately dwarf habit and showy, they are very suitable for small beds.

CHRYSANTHEMUM CULTURE.

COMMUNICATED BY MR. S. BROOME, TEMPLE GARDENS, LONDON.

FOUR respectable London societies met together recently at one of the amateur rooms, York Street, Kingsland, comprising from sixty to seventy members, to hear papers read on this subject from some of the best practical growers, namely, Mr. J. Holland, gardener to R. W. Leake, Esq., Hounslow, on the culture of pompones; Mr. Oulridge, gardener to — Foster, Esq., Stamford Hill, on large-flowered varieties; and Mr. Bird, florist, Stoke Newington, on the application of liquid manures. In consequence of the high character sustained by these gentlemen in the floricultural world, and especially as first-rate Chrysanthemum growers, their papers were listened to with deep interest. My notes on the treatment therein recommended are as follows, and I forward them for insertion in your cheap and valuable little work for the benefit of your numerous amateur subscribers, doubting not that they will be read with equal interest by all, for myself I can only say that I place a high value on the hints here given.

Mr. Oulridge's treatment is as follows:—*Large specimens for Exhibition*—Commence as early in November as possible, that is, so soon as the suckers are strong enough, as I prefer suckers to cuttings; these should be taken from plants grown in the borders, of a good strain, that have not been grown before as specimens, but left to themselves without any trimming. Choose the short-jointed in preference to the long and succulent ones, remove all eyes that are under the mould to prevent them throwing up suckers, which rob the parent plant of much of its vigour. Let your pots be washed clean, and prepare the compost of equal parts of fibrous bog, leaf-mould, loam, and a fair proportion of silver sand; put the suckers into three-inch pots, singly, and place them in a cold frame, with just sufficient water to keep them alive. Guard against frost, and keep it out of the frame, or it will retard the progress of the plants. As soon as they are well rooted in the nursery-pot, which will be about the latter end of January, repot them into five-inch pots; the compost should this time consist of two parts turfy loam and one part well decayed cow or sheep manure, with a little silver sand, the whole thoroughly mixed up with oyster shells, pounded very small. Be careful not to wet the leaves in winter, or they will be liable to damp off and mildew. When the plants have commenced growing carefully take out the leader, say at seven inches high, so that you may ensure sufficient breaks to form a good plant of each. When the laterals are long enough, tie them carefully to a stick, and in doing this mind they do not snap. If all goes on well, by the middle of March they will require a second shift into six-inch pots, by the middle of May the next shift will be required into eight-inch pots, and when well established again stop the whole of the laterals, so as to make compact and bushy plants; by the latter end of June they should have their final shift into eleven-inch pots, the compost as before, with plenty of drainage. See that the pots are not placed too near together, but allow a free circulation of air all round them. To prevent the roots getting too dry around the outside, it is a good plan to place the eleven-inch pots inside larger sized ones, which will prevent a too rapid evaporation taking place during hot weather; give plenty of water when dry, and water around the pots with a rose during the evening to give a due degree of moisture to the ground; by no means spare the syringe also over the foliage to keep back all disease. Should green-fly attack them use soft soap, say half a pound to two gallons of water; if you dip the heads of the plants into it, all the better, if not, syringe them. Train the shoots properly out, to prevent weak growth, and when the plants are furnished with abundance of fibrous roots use liquid manures in hot weather, cow and sheep, with soot in early autumn. By the middle of September set the plants in a south aspect, against a wall is best if you have such a place, and as soon as the flower-buds show themselves, remove all weakly-looking ones, leaving those that are well formed.

The following are recommended by Mr. Oulridge for growing as specimens :—*Annie Salter*, *Defiance*, *Plutus*, *Vesta*, *Albin*, *Beaute du Nord*, *Phidias*, *Christine*, *Madame Cammerson*, *Mount Etna*, *Hermione*, and *General Havelock*.

Culture of Pompones in Pots.—Mr. Holland, gardener to R. W. Leake, Esq., Spring Grove, Hounslow, and one of the best growers we have, read a very interesting paper giving his practical experience, commencing with propagation, and proceeding all through the various stages on to blooming. He recommends taking off cuttings as early in the winter as possible. Some sorts throw their suckers long enough to take off at blooming-time, others much later. Mr. Holland strikes from them when long enough to throw four or five joints; he inserts them in loam three parts, well rotted manure one part, and silver sand one part. The cuttings have the eyes taken out with the leaf, in order to prevent them sending up suckers in the mould. He strikes them in sixty-sized pots, about six in each, with as little bottom heat as possible, and when struck pots them into sixties. When potted he examines them to see if there be any suckers or eyes, and if so takes them out. As soon as they are well rooted they are repotted into forty-eights, and kept in a cold frame through the winter, up to the latter end of April. Care is taken that they are not exposed to the cold nights in case of frost, in order to preserve good, healthy foliage. The next thing requiring attention is the first stop. Mr. Holland stops them when five or six inches high, if short jointed, but if long, at six or eight inches, always insuring five or six breaks or laterals; and when they are long enough four of them are pegged down, and the other left for the centre. Watering must be properly attended to, or they will lose their foliage. The next stop is when the plant is sufficiently grown to show four or five joints clear of the last stopping. He now goes on until the final stop, which is not later than the first week in August, attending to pegging down, watering, and tying out properly, to make the plant uniform. It must be remarked that the weak shoots should not be stopped so close as the stronger ones by two or three eyes. As the Chrysanthemum always enjoys a change, he pots until the plant arrives at its final shift, which is an eight-inch pot. When the pot is found well filled with roots plenty of liquid manure is given, but not too strong. From spring to the end of June Mr. Holland employs an infusion of horse, sheep, and poultry dung, to every gallon of strong liquid adding three gallons of water. From June to September he uses cow-dung—four gallons of water to one of strong liquid, with a handful of lime in it to destroy the worms; and from September to blooming-time the same is used as recommended for spring. The plants are placed in the ground so as to have the morning sun until eleven o'clock, and again from three till sunset in the afternoon, being shaded in the middle of the day. To preserve a good foliage and have plants of healthy growth, he recommends, when ready to break colour, to remove them into cold pits or houses having a south aspect and movable lights. Here the light-coloured kinds are placed six inches farther from the glass than the dark ones, to preserve the brilliancy of the colour. A growing moisture is kept up until the plants are in bloom.

Liquid Manures:—Mr. Bird, florist, Stoke Newington, a very successful grower of large varieties, then read an instructive paper on liquid manures. He said, in the first place, he was not an advocate for applying liquid manures of any kind so long as there is sufficient strength in the soil to keep the plants in a healthy, growing state, although, so soon as the pots are full of roots, it is advisable to commence with weak guano, horse, sheep, poultry, or cow dung—by no means apply it strong at the commencement. As a compost for potting he recommends good turfy loam, well turned over and chopped in the winter, in order to let in the frost and sweeten it, with a small portion of rotten dung and pit or silver sand, and plenty of drainage. When the roots have fairly reached the sides of the pot he advises to commence with liquids; and as the plants increase in strength the liquid is to be correspondingly increased, using hot manures in spring and autumn, and cooling, such as cow-dung or horse-droppings, where the horse is kept on grass, in summer; and as the Chrysanthemum likes soot, he recommends using a handful in every gallon of water used as liquid, but prefers watering the plants thoroughly with plain soft water first, before using the diluted manure. The liquid is then applied, drawn off as clear as it can be obtained. He avoids using it in the middle of the day, choosing the night or morning, and takes care the outside of the mould in the pot is not open or cracked, so as to cause the water to escape without thoroughly moistening the ball and leaving the centre dry, which is too frequently the case: where this is found to exist, a little fine mould is put in to fill up the cavity. This mode of using the liquids he discontinues when the plant shows the colour of the bloom, as the work is all done that is required, and liquid manure applied after this would only cause it to bloom with a seedy eye.

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THE VERBENA.

BY MR. JAMES HALL, GARDENER.

THE Verbena has been an especial favourite with me for some years; and although a good deal has been said and written on the subject of its culture and preparation for exhibition, I trust I may be excused in my floral enthusiasm in adding a little more to the store of information accumulated in your valuable little work—for what flower is more attractive and beautiful than the Verbena? indeed, as an ornamental plant it is without equal, and is adapted either for bedding out or for the greenhouse and conservatory; for rockwork or for vases no plant is more suitable. It never looks better, however, than when planted in mass in the beds of a beautifully designed and well laid out garden. Then again, how various are its colours and how bright, and what magnificent "trusses" does a well cultivated plant of some of the improved varieties bear; how diverse is it in habit, some sorts being very creeping and dwarf, while others are more erect, and well adapted for training over wire trellises. To all these desirable points the Verbena has the great recommendation of being of very easy culture. For bedding I make early winter preparations, and give them a good dressing of manure or the remains of an old hotbed, and leave them rough for the action of the frost, so that the soil may be well pulverised. About the third week in April I lighten and level the soil, and put in the plants about fifteen inches apart, pegging down the shoots with bent wires, to secure them from being disturbed by the wind. If the weather be dry I give liberal waterings, using liquid manure frequently, except to the light-coloured varieties. As the shoots increase the pegs are removed, and placed wider apart.

My cuttings are pricked out in light sandy soil in August, under a west wall, and covered with hand-glasses, where they root freely; and in about a fortnight they are potted off into small sixties, in a mixture of turfy loam, peat, and a little silver sand. After being potted, I keep them close in a shaded frame for a day or two, until they have pushed fresh fibres, when air is gradually admitted. To make them bushy, the plants require to be stopped at the second joint of every shoot. I keep them in the frame until the end of

October, when I move them to the cold pit, and after this am very careful in watering them, and expose them freely to the sun and air whenever the weather allows through the winter. The greatest danger is to be apprehended from their rotting off if kept too damp and close. When water is given I generally select fine mornings, and set the plants out of the pit, where I leave them until all the water has drained away. Under this treatment my plants are strong and bushy, and by the middle of April are ready for planting out as aforesaid; and the advantage of putting the plants in early is that the display of bloom is also early, and may be kept up until the frosts of autumn cut short the beauty of these lovely gems of the parterre.

The following half dozen are very fine sorts for bedding:—*Prince of Oude*, a deep, rich plum purple; *Rosy Gem*, rose, very dwarf and compact; *Cardinalis*, brilliant scarlet; *Evening Star*, reddish orange, with a fine yellow eye—a very good trusser, and attractive, distinct variety; *Celestina*, a beautiful flower, of a pale blue, with a small, but clear white eye; *Miss Trotter*, intense scarlet, very free blooming.

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PROGRESS OF THE CARNATION AND PICOTEE, WITH REMARKS ON THEIR MANAGEMENT.

(*Continued from page* 71.)

WE now offer a few brief instructions for the monthly treatment of these favourite florists' flowers, with the simple remark that they will be found to contain the pith and marrow of all that has been written or practised by the best growers, and confirmed by experience.

January.—The plants that are now in pots in the frame require to have a free circulation of air, and to be kept from damp, which is so prevalent during this and the following month. If frost is prevented getting through the sides of the pots they will take no harm, yet if it penetrates to the fibres of the roots it will do them much injury; give air, however, as much as possible, for by keeping them too close it encourages damp, and consequent mildew and canker. They should have a very limited supply of water, but the soil should not be permitted to get quite dry. Cover up at night, as the weather is generally uncertain. Those in the open ground should be protected with a little litter, or leaf-mould, to preserve them from frost; they are pretty hardy, however, in the beds, and should not be covered up too closely, and the litter should be dry when put to them.

February.—Little more is necessary this month in addition to what has been noted for the last. Should there be any appearance of spot, or the leaves turn yellow, cut them off as far down as the sound part, and be careful not to allow any decayed leaves to remain in the frame. Let the surface soil be stirred, and if any of the pots appear to hold moisture, examine the state of the drainage. Mix up some compost, turn, chop, and free it from grubs or wire-worm, it will be the better for it when it is wanted. More air may be admitted in the middle of the day, as the sun gets higher, for we generally have some very fine days, even in this dull, damp month.

March.—The same treatment as before must be continued, and the plants constantly attended to, for this is always a trying month. Be careful to guard against the effect of drying winds, by a judicious attention to watering, and against damp by a too free use of it, as well as by seeing that the lights are in sound condition. Get ready soil and pots for potting into the blooming-pots next month.

April.—Potting into the blooming-pots may now be commenced. For compost, etc., see the former part of this article. Give free drainage, and turn out the plants with entire balls, merely removing the crocks at the bottom. When all are potted, set them under canvas, or in a sheltered place, where they may be secure from heavy rains, or the full sun. Such as are for planting out in the border may have a little good dung forked into the bed previously, and when planted they should be put in at such a distance apart as to allow of walking among them for the purpose of layering, a foot or eighteen inches will be sufficient. When potted, or put in, give a gentle watering, and they will require but little more attention until they shoot up their flowering stems.

May.—The plants in blooming-pots should now be placed on a stage, and it is a good plan to set them on inverted pots, in pans of water, to prevent the attacks of insects, earwigs, etc., although this will not effectually preserve them from the latter pests, which are furnished with wings. Place sticks to them early in the month, before the roots have filled the pots, or they are liable to be injured. Give water when they are getting dry, but do not keep them too wet.

June.—Begin to tie up to the sticks, not too tightly, however; and when the buds are large enough to lay hold of, they should be judiciously disbudded, or thinned, so as to leave two or three at most on a stem, in order that these may have the whole strength of the plant forced into them. As they swell, they should be tied round the middle with bass-matting, and then the tips of the calyx may be gently assisted to open, by tearing them down nearly as far as the matting; this assists the flowers to open regularly, and obviates the bursting of the pods. As a few flowers come out this month, depending more particularly on the season, it may be as well to allude to the preparation of the flowers, and the attentions necessary to be bestowed on them here. As the blooms open, the outer, or guard petals should be brought down, and to help to keep them flat and even, it is customary to place a card on the bud, on a level with the tie. These cards are cut round, and in the centre a circle is drawn, as wide as the bud, and this inner circle is then cut across with a penknife so as to form rays, a pencil or stick is then pushed through the hole thus made in the centre, and the card is slipped over the bud, the rays acting as so many springs to retain it in its place. The petals are brought down level with the card as they expand, one row evenly over another; a small pair of bone tweezers will prove useful in this operation, but take care none of the petals are bruised in doing it; if there be any petals self-coloured, or otherwise deformed, they are to be carefully extracted, for any such would of course disqualify a bloom. The flower stems are secured by wires, with hooks attached to the sticks. While the plants are growing and blooming they should have constant attention to watering, and occasionally a little weak liquid manure may be given. Seed may be sown in large pots, taking care to scatter it thinly; when sown, water it and shade from the direct sun.

July.—This being the flowering month, the previous instructions may be said more especially to refer to it, it is therefore unnecessary to repeat them. Layering may be commenced as soon as the plants are in full flower; nevertheless, those who are desirous of preserving the bloom in the greatest perfection, may defer the operation until the bloom is on the decline. If it be desired, however, to have the plants strong and well rooted in the autumn, in order that their layers may be better prepared to endure the succeeding winter, the plants should be layered at the commencement of the bloom, at which time the plants are full of juices and vigour, and the layers the better nourished and supported, and sooner strike root; but it must be allowed that the bloom is considerably impaired by the wounds inflicted in the operation, and particularly so when performed in an early stage of it. The practical part of this operation is so well understood by almost every person who is acquainted with the flower, as, in some measure, to preclude the necessity of entering into a very minute detail of the particulars; but for the information of such as are unacquainted we will briefly describe it:—Cut off the leaves rather close to the stem of all the shoots that are of a sufficient length, except those of the upper three joints; then make an incision with a sharp penknife in the stem, on the under side, half way between the second and third joints, under the lower leaves left on, and to nearly the middle of the stem, bearing the knife upwards, right through the second joint, and cut off at the joint the sloping piece below it. Procure a few hooked sticks, about four inches long, and peg down the layer, stirring up the soil where it is to be pegged down and mixing a little sand with it; the whole of the slit part is then covered up. After the layering is done, give a gentle watering to settle the earth about them, and they will do well if attended to.

August.—Where seed is to be saved, let it be from marked flowers, such as have thick firm petals, and fine blooms, taking out the decayed petals, so that the pods may swell and ripen without rotting. Seedlings should be regularly watered if the weather be at all dry, and on no account must they be deprived of air; when the sun is too hot, place the pots in the shade. Finish layering this month, and attend to them well until they have all struck.

September.—Examine the seed-pods, when they have turned yellow they are fit to gather, and should be placed in paper or horse-hair bags. When the seed is gathered, cut down the stems, and remove the sticks carefully, so as to avoid injuring the fibres. Prepare soil, clean loam without any mixture of dung, and turn it over carefully to pick out wire-worm or grubs, and have all ready for potting next month. It is well to provide a temporary covering for the seedlings in case of frosts at night.

October.—The layers and seedlings may now be potted off, two in a forty-eight, and one in a sixty-sized pot. Place plenty of drainage in the bottom; and when they are put in place them in a frame, where they can be protected by the lights for a day or two, and afterwards as necessity arises. Before the layers are taken off they should be carefully examined, to see that they are well rooted. These layers are to be potted the same way as the seedlings, and in the same stuff; they are then to be watered, put into frames, and kept close for a few days.

November.—Their winter quarters should now be got ready. For the best method of preparing a frame, see the former portion of this article. As long as the weather is open, give plenty of air. Seedlings are generally more tender than the old plants, and require rather more protection from frost as well as cold winds, because they continue to grow, in some degree, after the others are at rest.

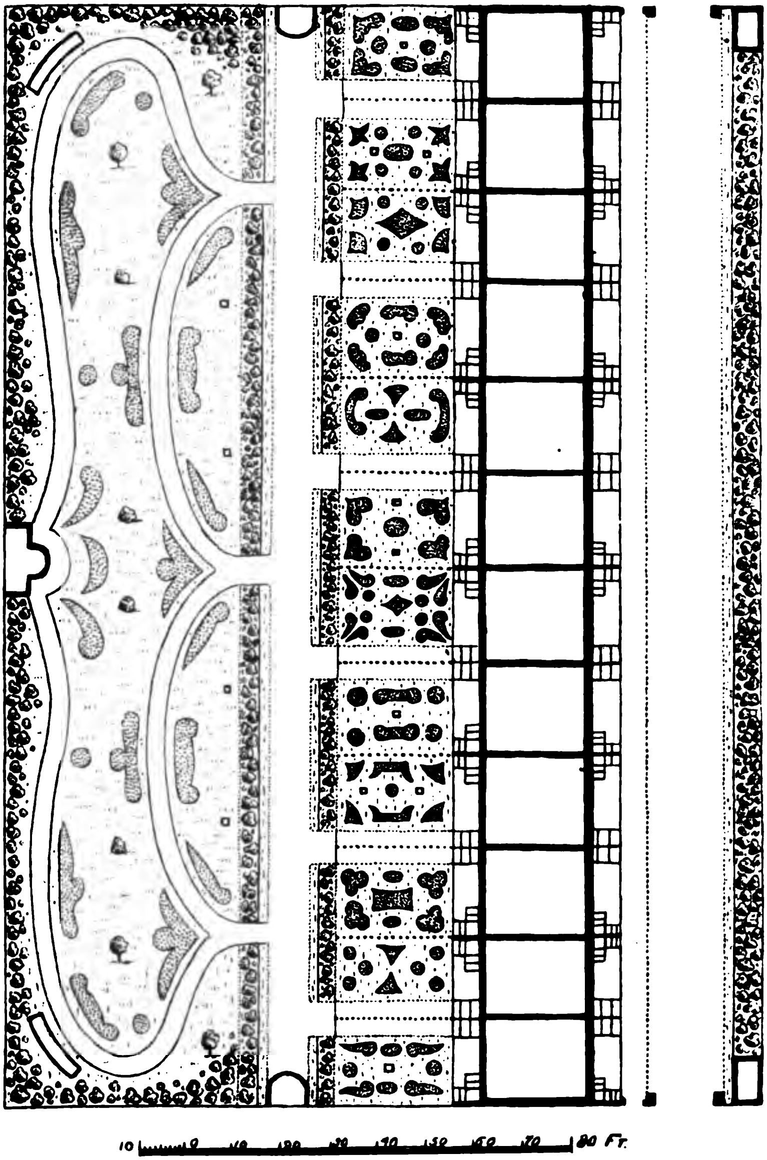
December.—The treatment laid down for last month is still to be continued, and all through the winter the most necessary precaution to be taken is to secure the plants from the many evils arising from damp, by free ventilation at all favourable times, and security against drip.

ON THE TREATMENT OF ERYTHRINA CRISTA-GALLI.

BY A NOBLEMAN'S FLOWER GARDENER.

WE are so much addicted to neglecting good old plants in favour of novelties, that this fact alone may be sufficient to account for the neglect with which this fine plant and once universal favourite has been treated. Few plants are, however, more elegant or truly ornamental than a fine specimen of *Erythrina crista-galli*, the old coral plant, introduced eighty-seven years back, and now but seldom seen, except in large collections, or places of some note. To grow it well, few plants, strange as it may seem, are more accommodating; and it may be flowered either as an early stove or late greenhouse plant, on a conservative wall, or even in a warm open border, with a little care and management.

The Erythrina also may be had in bloom early in spring by placing a plant in the stove not later than Christmas, and a succession may be kept up by starting them at proper intervals. In the greenhouse, if kept rather close when beginning to grow, they will



TERRACE OF XII HOUSES.

the plant up by the end of autumn and place it out of reach of frost and keep it nearly dry. In spring, as soon as all danger from frost is over, it may be turned out, and should have as much encouragement as possible. I have had a row of them annually in fine bloom, in a border in front of a south wall, continuing to make a beautiful show by their rich blossoms and luxuriant foliage, of which any one who has not seen them can form but little idea.

Erythrina crista-galli is a native of Brazil, where it grows as a bushy tree, forty feet high, and is one of the brightest ornaments of the flora of that enchanting region.

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DESIGN FOR THE GROUNDS OF A TERRACE OF TWELVE HOUSES.

BY T. RUTGER, ESQ.

THE accompanying design (*see Plate*) is intended for a terrace and gardens for twelve houses of a second-class order. There is a lodge-entrance at each end, and the houses are supposed to be elevated, and entered by steps, in order to give the basement for the domestic offices more light, and for which there is an area at each front, descended into by steps. A private flower-garden is given for each house, supposed to be separated by a wire trellis six feet high, for creepers. From the private gardens a broad terrace-walk is entered, having a verge of grass and a shrubbery on each side, and a site for an alcove at each end. From the terrace-walk there are three entrances to the shrubbery garden, which is intended for the accommodation of all the occupiers of the houses. A summer-house will be perceived in the centre, at the back of the shrubbery garden; and there is a seat indicated in the corner, at each end of the garden. A footpath will be perceived along the front of the houses, and a verge of grass, with a shrubbery, on the left of the coach-road. The footpath is intended to be paved with stone, and apertures with coverings made to let down coals in the vaults, supposed to be constructed below. The design might equally serve for a larger class of houses by altering the scale, when the grounds would of course be enlarged in proportion.

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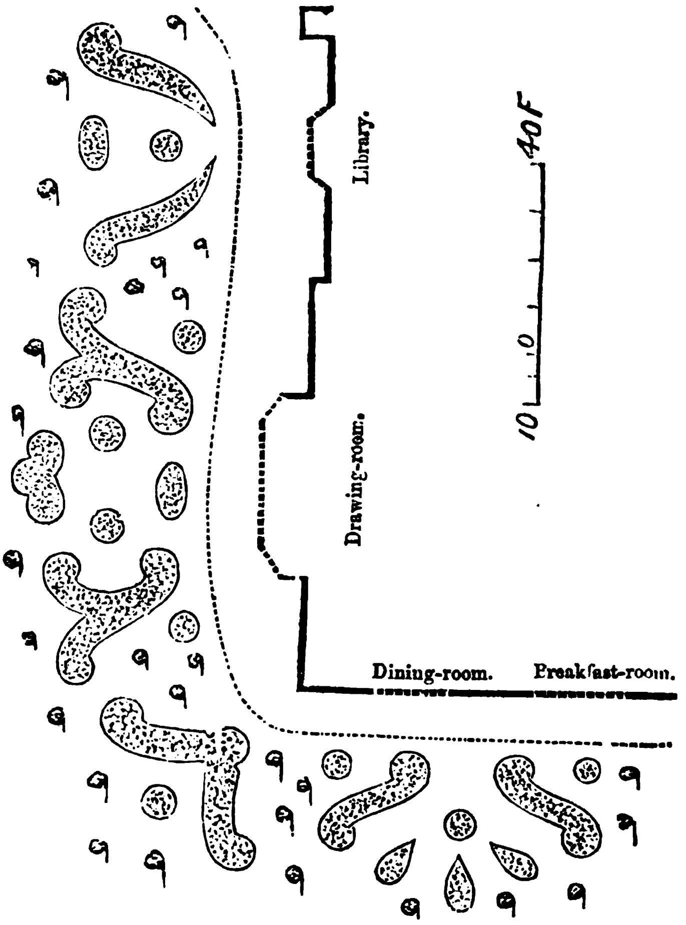
VALERIANA PAUCIFLORA.—This is a most excellent herbaceous plant, with fine pinnate foliage; the flower stem rises about two feet high, and is covered with pure white flowers. There is an elegance about the foliage that I feel unable to describe, and which, combined with the pureness of the white blossoms, render it a really good thing. I have introduced it a couple of years ago from America.—*W. Holcroft, Upholland.*

DESIGN FOR FLOWER-BEDS ON A LAWN.

BY T. RUTGER, ESQ.



In the selection of a site for a flower-garden, much depends on the taste of the proprietor of the mansion wherein he resides; should there be a handsome conservatory attached to the mansion, and entered from the drawing-room, the proper entrance to the garden may, perhaps, be from the conservatory, and if this be adopted, the laying of it out should be with the most exquisite taste, and with all the embellishments appropriate for the situation, such as statuettes, vases, flower-baskets, with neatly covered garden seats, a summer-house, or tea-room, a pond with a fountain, etc., etc.; but should a site be preferred situate within a shrubbery, it should be within a convenient distance from the mansion, and laid out with taste, making use of all the appliances necessary to make it complete, surrounding it with a wire fence, so as to exclude dogs and vermin; but there are persons who prefer the advantage of seeing flowers growing in beds opposite their windows, and such may be the case more particularly with invalids, as happened to occur with an invalid gentleman, who intrusted me to give a design to answer his wishes, and which was laid out agreeably to the delineation here given. The sitting-rooms of the mansion were on the south and east sides, surounded by a lawn, on which it was desired that the flower-beds should be laid out. It will be perceived that the beds were formed in groups, corresponding with the windows, and thus had a very pleasing effect, particularly when taking a bird's-eye view of them from the windows above. In order to make the beds agreeable to look upon in the winter, an ample number of variegated shrubs were kept in pots to plunge in the beds, when the summer flowers were cleared off; these consisted of Aucubas, Hollies of every sort that could be found, with all other varieties of variegated shrubs that were considered appropriate for the purpose; these, here and there sprinkled with non-variegated evergreens among the variegated species, rendered the beds an agreeable sight throughout the winter, and with a few dwarf evergreens planted between, and round the beds, added considerably to enrich the whole. The smaller beds were furnished with flowers in masses, and the others with flowers in variety.

The pot-shrubs, on being removed in the spring, were consigned to a place by themselves, and replunged, to serve again for the following winter. To carry on the system, it was found necessary to keep a stock of young growing plants, to take the places of those which were found too large for the purpose intended—these were turned out of their pots, and planted in the shrubberies.

ON THE CHARACTER OF THE SOIL AND THE PLANTS THAT NATURALLY VEGETATE THEREON.

BY MR. J. THOMPSON, ST. LAWRENCE, JERSEY.

THE great importance of a close study of the chemical composition of the soil, will perhaps be most readily appreciated by a consideration of the very various tribes of the vegetable kingdom that, under the same circumstances, are naturally produced on soils of different natures and characters, or in other words by a view of their relations botanically. There are none who are so slightly acquainted with the capabilities of the soil, but who are aware that some lands bear abundant herbage, and rich crops, whilst others refuse to yield a productive return of the same for cultivation. Some soils, therefore, are more suited to a particular tribe of plants than others, through supplying the elements (existing in them) required for the growth of those plants. It is interesting to observe how close is the connexion between the kind of soil and of plants that invariably grow upon it, when climate and other peculiarities are taken into consideration. The sands of the sea-shore, the margins of salt-lakes, and the surface of salt plains, like the Steppes of Russia, for instance, are distinguished by their peculiar tribes of saline plants—by varieties of *Salsola*, *Salicornia*, etc.; the *Triticum junceum* (sea wheat) also grows on the seaward slopes of the downs in close proximity to the ocean. The drifted sands, farther removed from the beach, produce their long, waving coarse grasses and reeds, as the *Arundo arenaria* (sea bent), *Elymus arenarius* (sea lyme grass), and *Carex arenarius* (sand sedge), the roots of which bind the otherwise ever-shifting sands together, and in many cases, as in Holland, serve to prevent the irruptions of the sea.

The peaty hills and commons of our island naturally clothe themselves with *Calluna vulgaris* (Ling), *Erica cinerea* (the fine-leaved Heath), and with the cross-leaved Heath (*Erica tetralix*). Bordering streams and brooks in which silica abounds, we observe varieties of the mare's-tail (*Equisetum*), and where they contain much carbonate of lime, the water-cress appears, lining the sides and bottom of their shallow beds, and oftentimes for miles from their sources. The Cornish Heath (*Erica vagans*) seldom shows itself otherwise than on serpentine rock, and the *Orobanche rubra* (red broom rape) only on basaltic or trap rock; the *Anemone pulsatilla* on dry banks of chalky mounds, the Lady's Slipper (*Cypripedium calceolus*) on the calcareous formation, and the *Medicago lupulina* on soils that abound in marl. So the red, and fire weeds (*Epilobium coloratum*, and *Erichtites percifolius*) cover every open space in the North American forests with their bright and pretty flowers, wherever the fires, so frequent there, have passed over during the year, the vegetable ashes thus produced being especially favourable to their growth and propagation, the seeds lying dormant in the soil until such occurrences take place. The clays also have their peculiar plants,—the rest-arrow (*Ononis arvensis*) delights in the weald and the plastic clay; the Oak in like manner is characteristic of the clay of the weald, while the Elm flourishes in preference on the green-sand formation. It must farther be noticed that plants appear to alternate with each other on the same soils. Burn down a forest of Pines in Sweden, and one of Birch takes its place temporarily, for the Pines ultimately supersede the Birch. This takes place naturally in certain localities; on the shores of the Rhine are seen forests of Oak, as much as four centuries old, gradually giving place to a natural growth of Beech, and in other places the Pine is succeeding to both. These and other similar differences are believed to depend on the chemical composition of the soil, in great part at least. The slug may live well upon, and therefore infest a garden deficient of lime, while the common land shell snail will abound where lime is plentiful, and readily obtained for the construction of its shell,—so it is with plants—each genus grows spontaneously where its wants can be most freely and easily supplied.

In the artificial rotation of crops, we only follow nature's own operations, for after one crop has abstracted from the soil those matters that enter into the composition of the crop, a second of an entirely different genus carries off, in preference, a large quantity of those substances of which the former has taken little. Thus it is seen why an abundant manuring, and the application of certain fertilizing ingredients, may so alter the composition of the soil as to enable it to grow almost any crop, and why, if the kinds of plants sown and reaped be so varied as to extract from the soil, one after another, the several substances which the manure is known to contain, the same land may be made at all times to yield excellent crops.

The scientific principles on which the true art of culture depends have not hitherto been sufficiently understood, or even appreciated, by many gardeners. I may remark, however, that if gardening is ever to be brought to that comparative state of perfection to which many other arts have already attained, it is important that the cultivator make himself thoroughly acquainted with the chemical natures of soils and plants, as well as with the laws of vegetable physiology.

REMARKS ON CITY SQUARES, GARDENS, AND CHURCHYARDS.

BY MR. SAMUEL BROOME, TEMPLE GARDENS.

(*From the* " *City Press*.")

THE *City Press* has done well in rousing public attention to the beautifying and health-giving influences of vegetation in the midst of the town. We want more trees, we want green churchyards, respectable squares, and a few genuine City Gardens. A correspondent who signs himself, " One who pines for the sight of a Green Leaf," has touched on the subject with feeling and judgment, and he is evidently one who understands the subject on which he offers his opinions. Many of his hints are admirable, and I like the spirit in which he approaches the question. Still, as a practical man, I must differ with him on some points, and the expression of my views will, I trust, prove useful to the cause, and as they are the result of twenty-six years' experience in the City, I am sure they will be received in the sincerity with which they are offered.

In the first place, it would be too expensive to introduce to the squares fresh loam, neither is it at all requisite so to do to produce good plants and flowers. Not a yard of fresh earth has the Temple Gardens had for these twenty years, except for pot plants. What the ground requires is deep digging, or rather forking with plenty of rotten manure, and the sub-soil stirred every year. The surface kept well forked up through the summer, and well mulched in hot weather, with any rubbish not offensive to the eye. To hoe and rake the surface to the smoothness of a duck's back, so that when rain falls it all runs off, instead of going to the roots of the plant, is absurd, though much practised. I also find late digging the best for London, in consequence of so much soot continually falling. By late digging you bury the surface-soot, and the plants have a purer subsoil to vegetate in, than if dug early in the winter, say four months before wanted to plant. I prefer three weeks—quite early enough before planting. With respect to evergreens, I think, of all plants, the Portugal Laurel and Laurustinus the worst for town. The Aucuba will do well in a sheltered spot; so will Box, Holly, and Ivy, but must be protected from easterly winds. The Rhododendron will do almost anywhere, and bloom for one season, if well-watered—but seldom does longer with me; I generally send it back to the nursery in the autumn, to recruit its health, and set its bloom for another year.

Respecting large trees, the poplar, plane, fig, mulberry, thorn, sumach, catalpa, and ash, are the best and least sensitive to smoke. You can see other large trees in the London squares that were planted forty years back look tolerably well; but plant a young tree of them now, I very much fear you will be disappointed in its growth. We ought not to enumerate such for present planting, for I have tried and found they will not do, now that London is so much larger, and consequently so much more smoky. As to trees in the City, strike a circle of a mile round St. Paul's, and you have the worst piece of ground to deal with; take another mile circle and you have a better, and so forth. If we wish to speak of what will do in the vegetable kingdom, it must be done in circles, according to circumstances. What grows and does well in Belgrave-square, or Bow, Islington, Kennington, will not do in Bloomsbury, Soho, Finsbury, and *vice versa*.

I have also found late planting preferable to early in the winter; for this reason, the plant is not so long exposed to London smoke, after coming fresh from the country, before it makes an effort to start its sap. Two years back, I planted in the square thirty-two plane-trees in the middle of *April*. They were planted in leaf-mould and well supplied with water, and only one died out of the lot. The next year I planted others the same way, in *January*, and half of them died, although they had the same treatment; this I attributed to too early planting. I think when the Temple Garden is referred to as a criterion for some other squares, the comparison is not a fair one; as we have the river to assist us, a half-mile from Waterloo to Blackfriars-bridge, with a quarter of a mile across, with no buildings in the south to interfere. When the steam-boats smothered us with smoke every five minutes, it was about the worst garden in London to manage, but now it is quite the contrary, and is getting better every day; though I am sorry to say, the factory smoke threatens soon to be as bad as ever, so that the "Smoke Bill" proves no permanent remedy. Respecting the graveyards, I quite agree with the writer: they are most shamefully looked after; and where an attempt is made to improve some of them, I see it done in so bad and expensive a manner, that it really gives one pain. They put in evergreens that are sure to die; and lay down turf, when a little levelling and forking over, and sowing rye grass, at a cost of thirty shillings, or two pounds, would answer all purposes. A few wall-flowers, primroses, and any common cheap spring flowers, at a shilling or eighteenpence per dozen, would please everybody, and would be easily renewed when their blooming was over. With these, and a little regular watering, and mowing the grass, the graveyards would be ornamental and cheerful. As it is, the shrubs look like so many dead boughs stuck in after a month or so; and this is what they call "doing the ground up for the summer." They are "done up" indeed, in a way that is a disgrace to the City. Still I do hope the time is near at hand when the churchwardens will see the necessity of making them a little Christian-like, for which an outlay of two or three pounds is all that is required.

WINDOW GARDENING FOR JUNE.

BY MR. SHEPPARD, BURY.

AMONG the many handsome plants that may be had in flower to decorate our windows this month, none are more splendid, perhaps, than the old *Kalosanthes coccinea;* when in full bloom it is extremely ornamental and very sweet-scented. Like most of the plants at this season, it may be kept upon the balcony both day and night; but it is preferable, where it is convenient, to take it into the room at night, and only let it be exposed to the air during the day. It continues in bloom for a long time after the flower has opened, the colour of it getting deeper the longer it continues. It should be watered a little both morning and evening, but should never be exposed to long or heavy rains.

Erodium incarnatum is a pretty-growing little plant for the room, having a small leaf very like some of the scented Geraniums, with a small, round, rose-coloured flower, having a circle of red or deep-rose around the centre. With a little care, this plant will continue in bloom during the whole summer. It should be watered a little, morning and evening, but ought never to be kept very wet, and should receive nearly the same treatment as the Geranium, to which tribe it is closely allied, although it is rather more delicate in its growth, and should therefore be kept in the room at night. *Verbenas* afford a delightful succession of bloom, of almost all colours, and are particularly handsome when nicely grown. Some sorts are more pendant than others, and these may be allowed to hang over the sides of the pots, and others may be trained over neat wire fences. They require attention to keep the soil just moist, and should have the surface of the mould stirred once a week.

The *Nerium*, or *Oleander*, is a beautiful plant for a room when nicely flowered. It requires to be placed as near the light as possible, where it can receive all the benefit of the sun; it should have careful attention to watering, and may be allowed to be kept standing in a little water while in bloom. There are several varieties of this flower, but the old one is the best, and requires less attention than all others.

Hydrangeas are more suited for balconies than the inside of a room, and are very desirable plants for this purpose, being so gay and showy, and continuing in flower for so long a time. They do best standing in a saucer, with a little water in it occasionally.

Gardoquia Hookeri is another graceful plant in a window, and very pretty both in its flower and growth, having bright orange-coloured blossoms, about two inches in length; it may be had in flower throughout the whole summer. If kept in the air during the day, it ought to be taken into the room at night, otherwise it will be very difficult to make it flower for any length of time; a little water may be given once a day, but none should be allowed to remain in the saucer. Of *Mimuluses* there are several beautiful hybrids, and all very showy; they do well in a light window where they can have plenty of air. To make them flower well they should have a liberal supply of water; and to keep them in bloom, as soon as the flowers drop off, the seed-vessels should be cut away, as it adds much to the strength of the bloom. *Petunias*, too, are showy window plants, and from the great variety of colour and marking, make a beautiful display of themselves. They flourish well on the balcony, and are especially adapted for cultivation in towns; to grow them to perfection, they should be planted in large pots, and have constant attention to watering. *Begonias* offer a wide field for selection, and there are few more abundant blooming plants, continuing in flower for many months, and requiring little care when in the window beyond supplying them freely with water. There are many fine plants, besides the above, that the lover of fair Flora may have to decorate his windows throughout this beautiful season of blossoms, but which will scarcely need particularising.

ON THE TREATMENT OF ALLOPLECTUS CAPITATUS.

BY THE FOREMAN OF A LONDON NURSERY.

IF any one desire to grow a fine stove plant, this is one that may well be recommended with others, growing as it does from two to three feet high, and remarkable for the singular beauty of its flowers, as well as for its handsome foliage. The blossoms are small and tubular, of a pale yellow colour, each inserted in a large brilliant crimson calyx, and the whole borne in large heads; the leaves are of great size, of a fine deep green; the mid-rib and stems, like the calyx, are of a bright crimson. When in full bloom it is as beautiful a plant as any in the stove. It is a native of Columbia, and was introduced by M. Linden, of Brussels, a few years ago. Its treatment resembles that of the Gesneria family, requiring a light, but rather rich soil. I have found it flourish well in chopped turfy loam, fibrous peat, decayed vegetable mould, and a little silver sand. Free drainage is essential, and when the plants are potted in early spring, they should have a gentle watering and be placed in a moist heat. They will grow rapidly, and may be encouraged with plenty of heat and a free use of the syringe. Early in June, as soon as the pots are filled with roots, the plants should be shifted again, and the same treatment continued as before for another month, when they should be removed into a lower temperature, with more air, shaded from the sun, and placed near to the glass. Here they will speedily show flower. When the bloom is over, let the plants be cut down about halfway, and give only sufficient moisture to keep them from getting quite dry until after new shoots are made. The following season, after being repotted, these will produce an abundant supply of their attractive heads of bloom. For increasing stock, cuttings may be made of the leaves at the upper part of the stem; cut them off, with the bud entire at the base, and insert them in pots of light soil with about an inch of silver sand at top, cover with bell-glasses and plunge in a brisk bottom-heat. The sand should be kept just moist, and no more; as soon as they begin to grow, give air, and when they are nicely rooted pot off in the same compost as recommended for older plants. They should be shaded for a while until they have become established. This gives a ready means of increasing stock to almost any extent, as each leaf will strike well enough, although young shoots make better plants.

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ON THE CULTURE OF THE GLORIOSA SUPERBA.

BY MR. J. WOOD, THURGOLAND.

I AM induced to forward my method of treating this *superb* plant in consequence of the great success that has invariably attended my plan of treatment, for with me it has always flowered very freely. About the middle of January I proceed to pot them in forty-eight-sized pots, in a mixture of one-half loam, one-quarter peat, and one-quarter decayed vegetable mould, covering the tubers about two inches deep, and then place the pots in bottom-heat, where the temperature is about eighty degrees, and until they begin to push a little above the soil I water them very sparingly. By the commencement of March, I shift them into pots of a larger size, taking care not to break the ball of soil, as the young fibres are very sensitive, and using the same compost as before described. I then plunge them in a bark-bed or frame, and allow them as much as ninety degrees of heat; when the shoots grow, they are tied to a temporary trellis or sticks, under which treatment they will advance eight or ten feet in growth, and bloom beautifully. When the stalks have died down to the bottom, I remove the pots from the bark-bed to a dry part of the house, where they are free from any droppings of water, for they must absolutely have no moisture so long as they remain in a dormant, inactive state.

The Gloriosa is easily increased by dividing the tubers lengthways, so as to cut the eyes in half at the end. Seeds also ripen very freely.

It is a native of the East Indies, having been introduced in 1690, and is consequently an old inhabitant of our stoves, though not grown so frequently as it is deserving of, and generally not so fine as it is capable of being.

BRIEF REMARKS ON MESEMBRYANTHEMUMS.

BY MR. WM. HOLCROFT, FLORIST, UPHOLLAND, NEAR WIGAN.

MESEMBRYANTHEMUMS, as a genus, are almost lost to the cultivators of the present day, but as your useful *Cabinet* does not exclude notices of good old plants as well as of new ones, I am induced to forward the present communication on behalf of this comparatively little known genus, with the hope that it may, in some measure at least, draw more attention to them, and call them once again, as in days gone by, into more general cultivation, as they are certainly well deserving of all that has been said or written in their favour.

When we at present meet with them in gardens, it is not often that we find more than two or three species (and they may, with more justice, be said to be *kept alive,* rather than grown), in some out-of-the-way place, where it would indeed be strange if they, or any other plants could flourish. In such places, I would inquire, is it any wonder that they should sink into obscurity? I am very much inclined to doubt whether they have been seen in anything like perfection since the time of the celebrated Haworth. True, the venerable Prince De Salm Dyck had a splendid collection, and grew them to perfection also; but in how many places at the present time can we find even an ordinary collection of them? The reason is plain, the plant growers of the present day have rarely seen them in their unrivalled splendour.

Those who desire ornamental-flowering, dwarf, bushy plants, may have them in this genus; those who like singularity of foliage may see it eminently developed here; and, again, those who admire unrivalled brilliancy of blossoms will not fail to find it in the Mesembryanthemums.

Having a choice collection under my care, I will describe a few of them to illustrate the foregoing assertions, and first *M. Polyanthon*, an eminently beautiful species; when the sun is shining hot upon it it is a splendid sight; the dwarf, compact habit of the plant when covered with its brilliant blossoms, of almost regal purple, presents a most beautiful appearance. No one who has gazed on the bright scarlet blossoms of *M. coccinea* can fail to be impressed with its grandeur. *M. spectabile* is truly a showy plant, with noble crimson blossoms, and of compact, dwarf habit. *M. aureum*, a brilliant yellow, cannot be looked at without admiration when finely flowered. One of the most curious of this tribe as regards singularity of foliage is to be found in the rare *M. felinum*, whose leaves look as if a cat's teeth had been placed on them; its flowers are large and yellow, but not very freely produced. *M. tigrinum* is another very curious plant, with spotted, clawed leaves, and yellow blossoms also. *M. linguæforme*, with its fine tongue-shaped leaves and yellow flowers, very showy, is well deserving of cultivation. *M. loreum* has leathery stems and pale yellow flowers, but is not near so fine as *sarmentosum*, with its long shooting habit and highly ornamented pink flowers. Both these require some care to preserve them in health and a free use of the knife to keep them bushy. *M. rubricaule* has deep red stems and pretty pink flowers; *equilaterale* is another pink species of considerable merit. *M. edule* is a large grower, but seldom flowers with us; it is known by the name of "Hottentot's Fig." *M. virens*, *australe*, and *crassifolia*, are sure to be admired when seen, their beautiful blossoms of different shades of pink being freely produced. *Uncinatum* has very singular foliage, and its stems look naked from its hooked or clawed leaves; its blossoms are pale purple. *Mutabile* is really most beautiful with its thick-set leaves and showy flowers; it is easily kept a nice bush. *Inclaudens*, purple; the flowers of this variety never close when they once open until they fade. *Maximum* is a remarkable plant, with half-moonshaped leaves and fine pink flowers, combining beauty with singularity. *Virgatum* is a tall species, with brilliant pink flowers, and requires some care to keep nice plants. *Glaucum*, though not an attractive growing kind, has fine orange flowers. *Molle* is really a most interesting dwarf species, just covering the top of the pot, and looks very pretty with its delicate pink flowers when in full bloom. *Spiniforme*, another pink variety, has leaves like strong thorns; being tall, it looks rather out of place among so many of the dwarfer kinds. ***Echinatum*** is a grotesque plant, with yellow flowers, and curious foliage. ***Barbatum***, a trailing species, would not be thought much of were it not for the singular beauty of its conspicuous pink blossoms. ***Stelligerum*** is a charming little plant, with numerous pink flowers, and nice foliage. ***Hirsutum*** is more compact, and has larger blossoms of the same colour. ***Bulbosum*** is a lovely thing; see it in bloom, or if you have it not, obtain it, for it is to be admired by every one. ***Intonsum*** is a queer-looking plant, with an unshaven black beard and bright pink flowers. I have, I fear, almost trespassed too far on your space with my descriptive remarks, but before I bring them to a close, I will add one more species, which is the glory of my collection, and the admiration of all; its habit is compact, the foliage covered with icy scales, which make it glitter in the sun, and the whole plant is covered with lovely rose-coloured flowers, and its simple name is—***Rosea***.

And now for a word on their cultural management. Light sandy soil with grit and a little bone-dust grows them to perfection. Some of the species require a liberal use of the pruning-knife to keep them within bounds and make them bushy, free-flowering plants. In their growing season they require a liberal supply of water, but when dormant in the winter, only as much as will keep them from withering. In summer they receive great benefit from being placed under a south wall, where they can have the full blaze of the summer's sun. The heavy rains of autumn are to be avoided.

EXHIBITION OF THE HORTICULTURAL SOCIETY.

THE first, or spring exhibition of the Society, took place in St. James's Hall, and was a very satisfactory one in every respect. As regards the Hall itself, it is an exquisite piece of architecture, erected from the designs of Mr. Owen Jones, which fact alone speaks volumes for the taste displayed in its plan and decoration. As an apartment for holding a flower-show, it appears well adapted for the purpose, and has our unqualified approval. The attendance of visitors during the two days the exhibition was open was close upon 5,000, all of whom appeared to be highly pleased with the plants, and the arrangements carried out so successfully by Mr. McEwen. The plants were arranged on three long tables up the room, one in the centre and two at the sides, with a smaller cross table at one end and another in front of the orchestra, at the upper end of the Hall. To add to the charm of the scene, the Hall was lighted up with a multitude of small gas-stars under the roof, which produced a very pretty effect, contrasted with the bright colours and rich gilding of the spacious room.

Previously to the admission of the public Her Majesty and H.R.H. the Prince Consort honoured the building and Society with a visit, and appeared much struck with the beauty of the scene. After the departure of Her Majesty the business of the Society was proceeded with, H.R.H. the Prince Consort in the chair, when twenty-one new Fellows were elected, after which Dr. Lindley (the secretary) asked to be permitted to direct the attention of His Royal Highness to the magnificent show of flowers then displayed before him. They were, he observed, now only in the middle of April, and yet they might suppose that they were at the end of May or the beginning of June, the flowers before them being such as formerly could only be seen at that period of the year. He would not occupy the attention of His Royal Highness by going through a mere nomenclature, but would rather advert to matters of general importance. The present exhibition illustrated the results of a series of quiet and silent experimentation which had been going on for a number of years in this country, most important to all gardeners, and which commenced under the auspices of their former President, Mr. Thomas Andrew Knight. At that time but little interest had been directed to gardening. It was only at the end of the last great war, which so desolated Europe, that any attention could be paid to it; and it was not until 1818 that steps were taken for effecting those improvements the results of which the meeting then saw before them. Mr. Knight was a great physiologist, and he devoted his attention and talent to the perfection of fruits, and to none more so than to the Strawberry. In his time the Strawberry of the garden, however rich, was small, and unwilling to bear abundantly, compared with the sorts now in cultivation; but Mr. Knight's experiments had led to the production of a race of which the British Queen was the great example, and of which that called the Princess Alice Maude was another form, the finest in the room this day. The Azaleas, a magnificent display of which was then before them, were not much known in this country before 1821. At that time they were small, difficult to grow and blossom, and were only to be found in the gardens of the curious, not being considered important objects of decoration. But now, through the means adopted by the Horticultural Society, this magnificent Chinese flower, as might be seen around that Hall, had not only been brought to perfection, but was cultivable by all without the least difficulty. Experiments were beginning to be made with the Moss Rose, similar to those which had been so successful in regard to the Chinese Azalea, and he believed they would ultimately succeed in producing those roses with as great a facility as that beautiful plant. With regard to the Orchids, magnificent specimens of which were to be seen in the exhibition, those plants were scarcely known in this country until after 1821, and at first it was difficult to succeed in their production, but now this race was produced with as great facility as many others. Indeed, specimens of them might be seen in women's barrows in the streets. The Rhododendrons had been brought to as much perfection as the Azalea. The first great change was effected at Highclere, in the garden of the Earl of Caernarvon, where his lordship's brother and others succeeded in so improving the constitution of the magnificent Rhododendron of India that it became as hardy as the insignificant wild races from the Euxine or the mountains of North America, the only kinds at that time generally grown in England. His Royal Highness now saw before him the results of further changes in the same direction in the magnificent hardy varieties which decorated the tables. There was in the room a specimen of *Clianthus Dampieri*, an Australian plant, different from the New Zealand kind, with which they were previously acquainted. It had been formerly discovered by Dampier; but in the days of that celebrated navigator there was no Horticultural Society to excite a desire to procure fine plants for decoration, and the beautiful thing remained almost unknown between the leaves of a *Hortus Siccus* until one of our late exploring expeditions recovered it and sent it to England. In conclusion, he alluded to the important effects of hybridizing, which might be termed the right hand of horticulture. When well directed, hybridizing was of great advantage, but it might in its occasional application be equally disadvantageous. By the admixture of two colours a more brilliant one might be obtained, but a contrary effect might also be produced. It had been found that by the admixture of purple and orange, both colours of great brilliancy, the purple and the orange were destroyed, and a dingy colour was the result. In fact, the effect of mixing colours in plants was the same as on the artist's palette. Of this a striking example was in the room, not indeed from a garden, but from a Guatemala forest, where by some chance the bright orange *Epidendrum aurantiacum* had mingled its blood with that of the brilliant purple *Cattleya Skinneri*; the hybrid had none of the richness of tint of either parent, but presented a dull and unattractive hue.

The Bishop of Winchester rose and said, I have been charged by the Council to offer their cordial and respectful thanks to your Royal Highness; at the same time I am sure your Royal Highness will understand that I do not presume, nor does the Council presume, to thank your Royal Highness for performing the duty of the office of President of the Royal Horticultural Society this day. Your Royal Highness would be the very first to repudiate any thanks for doing that which you consider as the duty of the office which you have condescended to occupy. But I am sure I speak the feelings of the Council, and I hope I speak the feelings of every member of the Society, and every lover of horticulture, when I express to you in their names, most respectfully and most cordially, our warm thanks for the courtesy and condescending manner in which your Royal Highness has shown your interest in this important Society.

The Prince Consort replied, I assure you, my lord Bishop and gentlemen, that I feel greatly obliged for the confidence which has been shown to me in electing me President of this Society, which has done so much good, and has laboured so long in the cause of horticulture, and which has brought British gardens to a state of perfection not to be rivalled in any other country. I cannot expect that my humble efforts will compensate you for the great loss you have sustained in that most excellent nobleman, my predecessor, and who has so long, so ably, and so incessantly laboured on behalf of this Society. But any efforts that may be required on my part I shall at all times be most happy to render, and anything that good intentions can effect I shall always be most ready to accomplish. (Cheers.) I congratulate you on the beautiful show now before us. It is a remarkable and cheering evidence of what can be accomplished by attention, and the application of science to the cultivation of not only fine, but useful plants, so that they may be grown in every garden. (Cheers.)

His Royal Highness then quitted the Hall, and the flower-show was formally opened to the public. It was much crowded throughout the rest of the day, up to the hour of its closing at 10 o'clock in the evening.

At 3 P.M. a ballot took place for the seeds, which, as was formerly announced, the Society had received from Peru, but in quantity insufficient for general distribution. A hundred and fifty-two prizes having been drawn, the formal business of the meeting was brought to a conclusion.

Roses, notwithstanding the earliness of the season, were exhibited by Messrs. Lane and Son and Mr. Francis, beautifully bloomed; and Messrs. Paul, of Cheshunt, had a fine Yellow Tea Rose, named Madame William, which was much admired, as were also blooms of the new Yellow Rose, Isabella Gray, recently figured in the *Cabinet*. *Azaleas* were in great force, and from a number of growers; some pyramidal specimens measuring six feet or upwards in height, and covered with bloom. Mr. Epps, of Maidstone, had two pretty seedlings, bright orange-red, and of fine form, which promise to be popular. *Rhododendrons* were contributed by Mr. Standish, Messrs. Lane and Son, Fraser, and others, among nurserymen, and by Mr. Ivison, gardener to the Duke of Northumberland, at Sion House. Those from the latter gentleman were fine bushy trees, and placed so as to form the centre of a mass of handsome plants placed on stages in front of the large organ. Mr. Standish sent, among others, the following: Sir Walter Scott, white with blush shading; *limbatum*, white, edged with rose, a very striking plant; *Boddaertianum*, a delicately spotted white. We noticed also a box of the delicate little cream-coloured species, *virgatum*, from Bhotan. The fine *R. Thomsoni*, from Sikkim, was shown by Messrs. Fraser, with its rich carmine-red blossoms measuring nearly two inches across. Messrs. Lane and Son, of Berkhampstead, forwarded a collection of yellow kinds, of which the best was named *aurem superbum*. *Camellias*, of these there were some good specimens from Messrs. Jackson and Son, of Kingston, and Halley, of Blackheath. Of

Fancy Pelargoniums a few were shown by Mr. Windsor, gardener to C. Cannon, Esq., of Hampstead, and Mr. Turner, of Slough; the plants exhibited by the latter, however, were scarcely bloomed sufficiently. Of *Orchids* there were several good collections, contributed by Mr. Carson, gardener to W. F. G. Farmer, Esq., Mr. Morris, gardener to Coles Child, Esq., and Mr. Warner. Mr. Carson had *Lycaste Harrisoniæ*, and *L. fulvescens*, both well flowered; the singular and handsome *Cypripedium Lowei; Dendrobium densiflorum*, and *D. fimbriatum; Oncidium Baueri*, etc. Mr. Morris also exhibited *Lycaste Harrisoniæ, Phajus grandifolius, Dendrobium nobile*, and other well bloomed specimens. *Vanda gigantea*, from Mr. Warner, of the Crescent, Cripplegate; the flowers are nearly three inches in diameter, of a firm substance, deep yellow, with a tinge of brown at the back, and blotched with light brown on the upper side. This we believe was the first time the plant has flowered in this country.

Although rather late, there was a gay display of bulbs—*Tulips, Hyacinths, Narcissi*, and the *Amaryllis* tribe.

Mr. Morris, Mr. Rhodes, M. Chantin of Paris, and Mr. Watson of St. Alban's showed groups of plants with fine foliage, chiefly consisting of *Caladiums* and *Dracænas*, among the latter, one, from New Zealand, with long, narrow, orange striped leaves, was new.

Messrs. Veitch and Son occupied almost an entire side of the Hall with their collection of miscellaneous plants, consisting of Orchids, Palms, Heaths, Camellias, Azaleas, Rhododendrons, etc. The most remarkable plant in their collection was doubtless *Clianthus Dampieri*, the rich scarlet flowers of which are blotched very conspicuously with jet black. Mr. Glendinning sent some handsome specimens of the double-flowered Chinese Peach, striped, white, pink, and Camellia-flowered, quite loaded with their beautiful blossoms. Messrs. Henderson also exhibited specimens of the double crimson variety. We noticed plants of *Skimmia Japonica* in flower, and fruit sent by Mr. Standish.

Of Florists' flowers there were *Cinerarias*, well bloomed and nicely grown, from several contributors; a few new ones may be noticed—Wonderful, white, with a broad carmine edge; Mrs. Dix, rosy-purple edge; Bellissima, violet-edged; and a few *Auriculas*.

The season for fruit being early, the display was as good as could have been anticipated.

EXHIBITION OF THE ROYAL BOTANIC SOCIETY, REGENT'S PARK.

THE first Exhibition of this Society for the season took place May 12th. The weather was of a very unfavourable character, and no doubt greatly influenced the attendance of visitors, who were not so numerous as would, doubtless, have been the case had it been more propitious.

Before the admission of the public Her Majesty the Queen and H.R.H. the Prince Consort inspected the grounds and exhibition. The show was a very good one, and the arrangements, under the superintendence of our excellent friend Mr. Marnock, were all that could be desired.

The collection of stove and greenhouse plants were very numerous, and the plants, it may be stated generally, were well-grown and finely flowered. Mr. Dodds, gardener to Sir J. Cathcart came first, and among his plants we observed fine specimens of Azaleas, *Leschenaultia biloba*, *Eriostemon myoporoides* and *buxifolia*, Pimeleas, *Adenandra fragans*, Chorozemas, a very fine plant of *Gompholobium barbigerum*, *Boronia surrulata*, full of bloom, and of great dimensions, *Erica Cavendishii*, very fine, Polygalas, Aphelexises, and a beautiful specimen of *Epacris miniata*, var. *splendens*. Mr. Whitbread, gardener to H. Collyer, Esq., of Dartford, followed, and in his collection we noticed a magnificent *Ixora Javanica*, a very large Epacris, the bloom scarcely forward enough, and well grown specimens of the following:—*Dipladenia crassinoda*, *Hedaroma* (Genetyllis) *tulipifera*, Pimeleas, *Erica Cavendishii*, Boronias, Polygalas, *Pultenaa stipularis*, *Azalea variegata*, and *Acrophyllum venosum*. Mr. Green, gardener to Sir E. Antrobus, Bart., exhibited fine plants of *Tetratheca ericæfolia*, *Pimelea spectabilis*, *Leschenaultia formosa*, *Erica depressa*, *Azalea coronata*, and a magnificent double red variety; *Acrophyllum venosum*, *Rhynchospermum jasminoides*, Eriostemons, Epacrises, *Boronia tetrandra*, and other beautiful plants, as also did Mr. Rhodes who exhibited in the same class.

Exhibitors of twelve Stove and Greenhouse Plants—Mr. Cutbush showed the handsome *Erica vestita*, var. *rosea*, and others of this beautiful tribe; a fine white Epacris, *Statice Halfordi*, Boronias, and Azaleas. Messrs. Fraser had *Leschenaultia biloba*, *Ixora Javanica*, *Medinilla magnifica*, *Statice imbricata*, *Azalea Fielderi*, and a pretty plant, not often seen now, *Sempervivum lineare*. Mr. Glendinning brought various Epacrises, Allamandas, Azaleas and Eriostemons. Among Messrs. Jackson's collection we observed a really fine specimen of the beautiful purple *Meyenia erecta*, quite compactly grown, and well covered with its lovely blossoms; it was an example of the way in which this plant can be grown when properly managed.

Of collections of ten Stove and Greenhouse Plants, there were contributions from Messrs. Peed, Barter, May, Kaile, Morris, Carson, and others. Among these we noticed Ericas of several kinds, Boronias, beautiful Chorozemas, and Pimeleas, Aphelexises, Epacrises, etc., but especially a plant of *Franciscea confertiflora*, beautifully flowered; Azaleas, including a fine white one from Mr. Carson; *Clerodendron splendens*, etc. Mr. May had a fine example of *Erica depressa* loaded with blossoms.

The Orchids were fine also, and numerous. Groups of twenty were sent by Mr. Gedney, gardener to Mrs. Ellis, Hoddesden; Mr. Wooley, gardener to H. B. Ker, Esq.; and Mr. Keel, gardener to

Dr. Butler, of Woolwich. In the first we observed the scarce *Cypripedium villosum*, *Lælia cinnabarina*, and *L. purpurata*, with beautiful white and purple blossoms; *Vauda suavis*, and a grand *Phæjus Wallichii*. Among Mr. Wooley's plants, worthy of special mention, were *Cattleya intermedia*, a light yellow Bifrenaria, *Dendrobium macrophyllum*, *D. nobile;* a *Lælia flava*, with nine heads of bloom; *Chysis bractescens*, and the curious *Arpophyllum giganteum*, bearing singular small purple flowers, arranged along tall spikes with much regularity. Mr. Keel had a beautiful *Dendrobium Devonianum*, also *D. Farmeri* and *D. aggregatum ; Trichopilia suavis*, *Chysis bractescens*, and *Schromburgkia tibicinis*.

Of collections of sixteen Orchids, Messrs. Jackson & Son had the best; and among their plants were *Lælia grandis*, the scarce *Dendrobium primulinum*, *D. aggregatum*, *Lycaste Skinneri*, *Vanda insignis*, and other well grown examples.

In collections of twelve, Mr. Carson showed *Dendrobium densiflorum*, *Cattleya Mossiæ*, and *Vanda teres*, a charming plant on a short stump, covered with ferns and mosses.

There were several exhibitors in the collections of six Orchids. The best were from Mr. May, gardener to J. Spode, Esq., and comprised *Cattleya Mossiæ*, *Trichopilia tortilis*, *Phæjus Wallichii*, etc.; Mr. Green sent a fine *Cattleya Skinneri* and *Lycaste Harrisoniæ*.

The Azaleas were very numerous, and extremely fine in every way. The principal exhibitors were Messrs. Lane & Son, Messrs. Turner, Fraser, Jackson, and Gaines. Among new ones, the best were Bride, Advance, and Model. Messrs. Lane and Mr. Bry exhibited some well flowered standard plants that were much admired.

Roses in Pots.—These were very choice, especially the plants forwarded by Messrs. Lane and Paul. A plant of Paul Perras, from the latter firm, was beautifully grown, as were also Madame Willermoz, Paul Ricaut, Souvenir d'un Ami, and Chênédolé.

The Pelargoniums were all good, both from nurserymen and private growers. The best were from Mr. Nye, gardener to W. Foster, Esq., of Clewer, and comprised Viola, Carlos, Queen of May, Sultan, Rosa, Conqueror, Sanspareil, Edith, Wonderful, Fair Ellen, Una, and Lord Raglan. The Fancies were also fine specimens of that attractive class.

Cinerarias were shown by eight competitors, and some of them were all that could be desired.

In other Florists' flowers, miscellaneous, we observed a new double white Geranium, named Gem of Undercliffe. This will probably prove a desirable plant for bedding purposes. A few seedling Pelargoniums were shown also, viz., Jung Bahadoor, dark spot; Sunset, bright scarlet crimson; Avril and Desdemona, two light varieties; and the Bride, white. Of new Cinerarias certificates were awarded to Perfection, Mrs. Dix, and Wonderful, all promising flowers.

Of new plants, Messrs. Rollison had the handsome *Begonia Rex*, noticed in our last, and *Pimela elegans*. Mr. Standish showed *Spiræa* *grandiflora*, very pretty, the flowers two-thirds of an inch across; Messrs. Jackson, *Vanda Jenkinsii*, and the new white variety of *Lycaste Skinneri;* Messrs. Paul & Son, a very magnificent hybrid Rhododendron, reported to be a seedling from *R. Dalhousieanum*. The blossoms were about the size of those of that large-flowering species, but instead of being, like them, greenish white, they were a beautiful yellow. This was much admired, and will be a great favourite. Another new Rhododendron was shown by Mr. Gaines, *R. Aucklandi*, a large white kind, with long, glaucous leaves. Mr. Young, of Godalming, had a new Azalea named *Aurea grandiflora*, an improvement on Sinensis. Of miscellaneous plants we remarked nice specimens of *Skimmia Japonica* in flower and berry, from Mr. Standish; beautiful yellow Rhododendrons from Messrs. Lane; and *R. Jenkinsii*, from Messrs. Henderson, of Wellington Road, a white and blush variety. Mr. Glendinning again brought nice plants of the new Chinese Larch, *Abies Kæmpferi*, and *Farfugium grande*. Mr. Morris forwarded some large pans of various sorts of Lycopods. A few tall Cacti, Epiphyllums, etc., were shown by Mr. Green and Mr. Bunn.

CRYSTAL PALACE, MAY.

THE grounds are well kept up, and now delightfully gay with spring flowers, bulbs, and ornamental shrubs. On the fine, expansive terraces the beds are filled with tulips, double and single, the upper series of beds containing no less than *seventy thousand!* of great variety of hues; the purple and white looking the most showy, while some beds of deep crimson kinds and white have also a charming effect. They are planted some beds as mixtures, and others entirely of one variety, and all in fine bloom. The shrubs in flower consist of Rhododendrons, early kinds, masses of double-blossomed Whin, *Berberis aquifolium*, and others; Spindle Trees, Yellow and Red Ribes, White Broom, Dwarf double Peaches, *Spiræa prunifolia, flore pleno, Cydonia Japonica*, Magnolias, and double-blossomed Cherries. The shrubs are doing well, and many things have made great progress since they were first planted, so that the grounds have a more finished appearance every successive season. We noticed the banks around the lakes covered in clumps with the gorgeous double-blossomed Whin, which on the bright green turf make a fine show.

Inside the Palace, the collection of plants is generally healthy; the Oranges, Pomegranates, Camellias, and Climbers do admirably. The immense shaft of the *Wellingtonia* continues to attract the admiration and astonishment of all visitors. By its side we noticed an oil painting, taken from a photograph from California, representing a noble specimen, deposited by Messrs. Lawson & Son, the eminent seedsmen.

SPRING AND SPRING-FLOWERING PLANTS IN CHINA.

COMMUNICATED BY MR. SHEPPARD, BURY.

HAVING recently forwarded to you a paper on Chinese gardens by Mr. Fortune, I now send you a further communication, which is highly interesting, and will no doubt please most of your numerous readers, who, like myself, feel gratified in perusing anything that relates to the botanical productions of the still almost unexplored "central flowery land" of the Celestials. Mr. Fortune says:—"It is now spring in the north of China. At this season the weather in the provinces of Kiang-nan and Chekiang is most delightful. It is not like an English spring, with its easterly winds and cold and cheerless days; nor is it like an Indian one, which is not a spring at all, but rather a hot, dry winter, with its leafless trees and burning sand. It is a real genuine spring, which tells one that winter has gone by. The air is cool, yet soft, and rendered softer by mild April showers; every tree is bursting into leaf; and how deliciously green these leaves are when they first unfold themselves! The birds are singing on every bush and tree, and all nature seems to rejoice and sing aloud for joy.

"In the north of China there are a number of plants which have their flower-buds very prominently developed in autumn; so much so, that they are ready to burst into bloom before the winter has quite passed by, or, at all events, on the first dawn of spring. Amongst these *Jasminum nudiflorum* occupies a prominent position. Its yellow blossoms, which it produces in great abundance, may be seen not unfrequently peeping out from amongst the snow, and reminds the stranger in these remote regions of the beautiful primroses and cowslips which grow on the shaded banks of his own land. Nearly as early as this the pretty daisy-like *Spiræa prunifolia*, the yellow *Forsythia viridissima*, the lilac *Daphne Fortunei*, and the pink Judas-tree become covered with blossoms, and make our northern Chinese gardens extremely gay. There are also some good Camellias which flower at this time, but they are generally grown in pots, under such shelter as mat-sheds and other buildings of a like kind can afford. Two of these varieties are particularly striking. Their flowers are of the most perfect form, and they have striped and self-coloured blossoms upon the same plant. These are now in the nursery of Mr. Glendinning at Chiswick, and in a year or two will be common in every collection. The double-blossomed peaches, of which there are several very distinct varieties now in England, are perhaps the gayest of all things which flower in early spring. Fancy, if you can, trees fully as large as our almond, literally loaded with rich coloured blossoms, nearly as large and double as roses, and you will have some idea of the effect produced by these fine trees in this part of the world.

"A little later in the season, that is from the 20th of April to the beginning of May, another race of flowering shrubs and herbaceous plants succeed those I have named. The most conspicuous amongst them are *Viburnum macrocephalum* and *dilatatum*, with their large heads of snow white flowers; *Spiræa Reevesiana*, and the double variety, which is more beautiful than the original species; *Weigela rosea*, now well known in Europe; Moutans of various hues of colour; Azaleas, particularly the lovely little "Amœna" *Kerria japonica*, the lilac and white Glycines, Roses, *Dielytra spectabilis*, and *Primula cortusoides*. It will easily be believed that with such a host of Flora's beauties these Chinese gardens must be gay indeed. But perhaps the most beautiful sight of all is the *Glycine sinensis*, climbing upon and hanging down from other trees. I believe I have noticed in my works the fine effects produced by this climber when in such situations. I again observed numerous examples this spring, and cannot help drawing attention once more to the subject. The fine plant of this species upon the Chiswick garden-wall is much and justly admired; but imagine a plant equally large, or in some instances much larger, attaching itself to a tree, or even a group of trees, entwining itself round the stems, running up every branch, and weighing down every branchlet, and in the end of April or beginning of May covered with flowers, some faint idea may be formed of the fine effects produced by the Glycine in its native country. I believe it would not succeed if managed in this way near London, or anywhere in the north; but the experiment would be worth a trial in some parts of Europe where the summers are warmer than they are in England. Many of our northern Chinese plants succeed well in the United States of America. China and America are both situated on the eastern side of large continents; they are equally liable to the extremes of heat and cold, and consequently the shrubs and trees of one country are almost certain to succeed as well in the other, provided they are reared in the same latitudes and grown in the same kind of soil."

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ON THE FORMATION OF GARDEN-WALKS.

BY A NOBLEMAN'S FLOWER GARDENER.

EVERY one will be ready to acknowledge that a good walk is a matter of importance in the formation of a garden; but it would seem that it is not every one who knows how, or takes the trouble, to form them, judging from many that are to be seen, even in gardens of considerable pretensions, formed of bad materials, improperly drained and constructed, not only causing them to be unpleasing to the eye, but unpleasant also to walk on, whether in wet or fine weather. *It is possible*, however, to have good walks, and such as do not offend, be the weather or season what it may; and he who takes a delight in the cultivation of his garden should make it his business to have such.

Latterly a great improvement has been made in some of the public thoroughfares, by the use of asphalte, and the same in gardens—these walks leave little to be desired, and the only objection that can be raised against them is on the score of expense, which, if the extent to be laid down in this way is large, becomes considerable; the amateur of limited means generally desires something more economical, and it is for his benefit that I have undertaken to draw up a paper on the subject, having had formed many miles of walks in the course of my experience.

The foundation may be as deep as you please, provided there be a sufficiency of materials at hand to fill it up—and where the walk is not extensive, if it be made of a proper degree of porosity, a drain is not essential. For small walks a depth of foundation of four or five inches will be enough, yet should not be less than this, as worms are very apt to work their way through it if made too shallow. For the materials nothing is superior to stone, and the harder the better; where stone is scarce, clinkers or broken bricks may be used as a substitute. These should be screened to something like an uniform size, about as big as walnuts will do. After it is spread it should be rolled to a compact surface, and if lime or old mortar can be had for little, it does well, mixed up with coarse gravel, to form a layer over the foundation, and is a great security against worms; after it is laid, water it, and before it is dry form it to a smooth surface, and scatter over it smaller gravel and sand. This will form a walk almost as solid and dry as concrete, and yet sufficiently porous to carry off water. Another substance used but seldom, and yet of very neat appearance for a surfacing material, is old broken cockle shells. They are used in some districts where they are to be had plentifully, and at little expense, instead of gravel, and for limited gardens I think they look better, for they soon become crushed small,. and lay very smoothly and quite compact. They are very agreeable to walk upon in this state, and so porous as easily to carry off the wet; moreover, in rainy weather, they are more solid than at any other time, and a shower of rain washes them and makes them look very clean and neat. One great advantage they possess in addition should not be overlooked, and that is, they may be hoed over much better than gravel, and are more easily cleared of weeds. It is true, after a time, such walks will require a fresh "top dressing," to improve their look, after much traffic, when reduced to a powdery state; yet, as this will only take place at distant intervals, it is no real objection. I do not wish to be understood as underrating gravel when it is good, but think in small gardens the shells look quite as well, and possess equal, if not superior advantages in some respects; for large walks gravel or asphalte are better.

In stiff, retentive, or clayey soils, it is best not to concrete the walks at all, and in order to carry off the superfluous water, a larger drain may be made in the centre of the walk, lower than the foundation; or if concreted, a drain should be formed at each side, parallel with the walk. Another point not to be lost sight of is to allow a well made walk to have a slight rise towards the centre. In narrow ones this may be very little, but where the walk is wider more considerable, and, to be effective, the slope should be as uniform as it is possible to make it.

As to edgings, nothing looks better than well kept turf; it is a good plan to sink slips of slate on the walk side of the verge, with the upper edge about the third of an inch below the surface of the grass, so as to be out of the way of the scythe, and yet high enough to prevent the grass encroaching on the walk. This, if well laid, will preserve the sides perfectly parallel and uniform, and looks much neater than a raw edge of turf left after the edging-iron has passed along it. Where the beds are on gravel, or any material of that kind, I think there is nothing that looks better than box, kept dwarf and neat. If well planted, and properly attended to, it always looks healthy and fresh. One objection to it is that it harbours slugs, but where it is not allowed to get too thick, I believe the objection has but little weight. Thrift is much used in small gardens, but is generally allowed to become unsightly, and clumpy for want of being taken up and divided. Other green edgings are seldom satisfactory, although we sometimes observe the following made use of—daisies, pinks, "London pride," primroses, violets, periwinkle, and strawberries. One plant I would recommend, however, as well adapted for edging under the shade of trees, namely, the common sorrel, which was first, I believe, brought into notice by your old correspondent, Mr. Peter Mackenzie. In geometrical gardens the edgings of the walks and borders may be of slate, or neat tiles, ironwork, or painted wood, although the latter is generally expensive, through perishing by decay, and cost of paint.

NOTES ON NEW AND SELECT PLANTS.

CATTLEYA GRANULOSA. Nat. Ord. *Orchideæ.*—One of the noblest of its tribe, first brought into notice by Mr. Hartweg, who forwarded it from Guatemala. When well grown, there are few Orchids that can surpass it. The pseudo-bulbs are a foot or more in length, jointed at distant intervals; leaves large, in twos; the flowers are borne in spikes or racemes of from six to eight in number; the sepals and petals are spreading, all of an uniform light olive-green colour, marked with a few small red spots; the lip, is white, yellow at the base, and at the extremity covered with a rich mass of small purple spots. The blossoms measure from four to five inches across. (*Bot. Mag.* 5048.)

45. POLYGONATUM ROSEUM. Nat. Ord. *Smilacineæ.* Synonym,

Convallaria rosea.—A pink-flowered Solomon's Seal from Altaic Siberia, near the river Kurtsch, and from Chinese Songaria, near lake Saisang-Nor. It grows from one to two feet high, and bears numerous small flowers of a pale pink colour, tinged with purple. Not yet introduced to our gardens. (*Bot. Mag.* 5049.)

46. BOLBOPHYLLUM NEILGHERRENSE. Nat. Ord. *Orchideæ.*—A new Orchid of no great beauty, recently introduced from the Neilgherries. It flowered at Kew for the first time in January last. (*Bot. Mag.* 5050.)

47. CLIANTHUS DAMPIERI. Nat. Ord. *Leguminosæ.*—Although known to botanists since the description in Dampier's Voyage of 1699, this striking handsome plant has been a stranger to cultivation until a very few years past, when Messrs. Veitch were so fortunate as to raise plants from seeds received, we believe, from the north-west coast of Australia. When it was first exhibited at a meeting of the Horticultural Society a medal was awarded it, which it has proved richly to deserve. Sir William Hooker remarks, "Specimens from Dampier's Archipelago, on the north-west coast of Australia, are in my herbarium, gathered by Mr. Bynoe in the voyage of H.M.S. Beagle." Again, Mr. Allan Cunningham met with the same plant in the western interior of New South Wales, on the eastern shore of Regent's Lake, on the River Lachlan. The same plant was observed on the Gawler Range, not far from the head of Spencer's Gulf, in 1839, by Mr. Eyre, and more recently by Captain Sturt, on his "Barriere Range, near the Darling, about 500 feet above the river." It is a procumbent or ascending, herbaceous plant, hoary all over, the stems slightly tinged with red. The blossoms measure about three inches and a half in length, of a clear scarlet-crimson, the standard being blotched at the base with an intense purple-black spot, contrasting well with the brighter colour. It is a plant of easy culture, closely resembling that of the Pelargonium, and will, when better known, be a favourite of no common order. (*Bot. Mag.* 5051.)

48. FRITILLARIA GRÆCA. Nat. Ord. *Liliaceæ.*—A native of Mount Hymettus, about the middle of the mountain, and hardy in our gardens, It flowers readily in the open border, and in a frame as early as March. The stem rises from six to nine inches, and the flowers are solitary, rarely two, smaller in size to those of the common *F. meleagris*, and less bell-shaped; of a yellowish-green, with tawny or rusty markings. (*Bot. Mag.* 5052.)

49. WISTERIA SINENSIS, *var.* ALBIFLORA. Nat. Ord. *Fabaceæ-Papilionaceæ.*—One of Mr. Fortune's introductions from the north of China, and a fine variety of the older and well known blue one. When trained against a wall it flowers profusely in any aspect, excepting perhaps the north. If grown with or grafted on the older kind, it makes a very pretty contrast. (*L'Illust. Horticole*, 166.)

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QUESTIONS, ANSWERS, AND REMARKS.

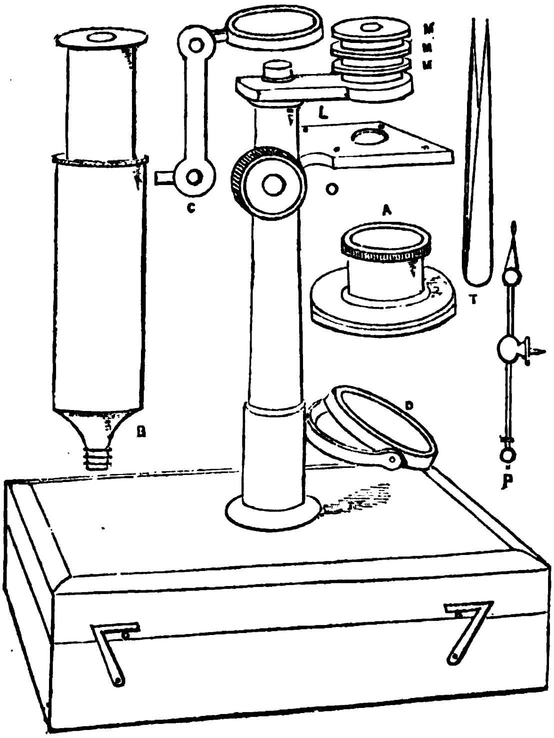
TWELVE SHRUBBY CALCEOLARIAS.—Will you oblige me with the names of a dozen of the best shrubby Calceolarias, and inform me where they can be obtained?—*J. P.*—[Amplexicaulis, light yellow; Aurea floribunda, orange, dwarf, and very compact; Beauty of Montreal, bright crimson-red, a small flower, but a good bedding variety; California, golden yellow; Canary Bird, canary yellow; Compacta, one of the best yellows, very dwarf and spreading habit; Dropmore, straw colour; General Pelissier, orange-red with yellow cap and edging, very fine; Kentish Hero, orange-buff; Lady Middleton, orange-buff, a good bedder; Purity, white, good habit and fine trusses; Snowflake, white, good habit for bedding. The above are the sorts we would select for our own growing. We do not undertake to recommend any particular nurseryman: The plants may be obtained of any respectable firm.—ED.]

JUNE TREATMENT OF THE ROSE.—Let every cultivator bestir himself to destroy green-fly and mildew; fumigate well the plants in frame or greenhouse, and where the least sign of an insect appears on the trees against walls, syringe them well night and morning; the neglect of proper precaution for only a few days may lead to the injury of many of the finest blooms. See that each plant is properly disbudded, and tie out the shoots of the compact and upright growing varieties where they are too much crowded. Where large blooms are desired, a few of the smaller buds should be thinned out with a pair of sharp-pointed scissors. Tie standard plants firmly to their stakes; a high wind at this time would do injury to any not properly secured. Water recently planted beds of the tea-scented and Chinese varieties, and all late planted roses, should the weather be dry. Manure-water may be applied to established plants with good effect, particularly to those from which blooms are required for exhibition. Plants that were budded last summer will now be making vigorous shoots; these must be carefully tied up as they grow, otherwise the first gust of wind will blow them out. Suckers will be numerous, always take them off close at the stock.—*J. Cranston.*

DIELYTRA SPECTABILIS.—I should be greatly obliged if you would, through the medium of the *Cabinet*, afford me any information respecting the treatment of Dielytra spectabilis.—*J. Poulson.*—[Leaf-mould, good loam, and a little silver sand is the most suitable for growing this beautiful plant. It grows very freely, and may be propagated either by seed sown in pots in a frame, by cuttings, or division of the roots if you have a large plant. Give it liberal drainage, and, while growing, a free supply of water. If planted in the border, lay a few decayed leaves or litter over it in winter to preserve it from frost and the heavy rains that generally occur. It always flowers best in pots however. It may be started in the greenhouse, so as to produce a long succession of bloom. When out of flower plunge the pots in the border.—ED.]

BIOGRAPHY.—I am of opinion, Mr. Editor, that if you were to favour your subscribers with a biographical notice of eminent gardeners and botanists, it would prove very acceptable. There are many worthies of whom we know but little, but should be glad to know more; if you were to give wood-cut portraits of a few it would be very interesting. Perhaps an appeal to the subscribers of the *Cabinet* would do some good in the way of contributions towards the subject?—*H. W. C. Rudd.*—[We shall shortly comply with the suggestion of our esteemed correspondent, having abundant materials at hand, as well as access to much more; and while not allowing these memorials to press unduly on the space devoted to the culture and general management of plants, we intend to devote a spare corner now-and-then to the lives of men who are deserving of special respect from all who are friends of gardening. We cannot promise to "begin at the beginning," but shall arrange the series as most suitable to our convenience. We happen to have a very extensive series of the autographs and correspondence of many who have rendered their names illustrious as professors or promoters of gardening, and a great accumulation of scraps serving to illustrate their lives, of which we shall make a liberal use. We will not undertake to promise portraits, but fac-similes of autographs we intend to give. We shall commence in an early number with a biographical account of the Tradescants, gardeners eminent in the seventeenth century, and of whom we possess some curious information.—ED.]

Casella's Garden Microscope.—Mr. Casella, of 23, Hatton Garden, who has done so much for the gardening public by his manufacture of cheap, reliable thermometers, barometers, rain-gauges, etc., has added to his series of popular instruments a gardeners' or botanical microscope, at the comparatively low price of one guinea. It consists of the general arrangement of Field's Microscope, as adopted by the Society of Arts, to which Mr. Casella has added a compound body of sufficient power to extend its use to the more minute objects that often present themselves, even in ordinary investigations. This instrument is all that the student can require, and although not sufficiently powerful for minute physiological purposes, it is extremely convenient for general use. No gardener or young inquirer into the organization and structure of plants should be without one. We are really surprised that so excellent an instrument, with all its appliances of forceps, insect-box, condenser, and so many powers, can be got up for the money, and are pleased that it is now in the power of almost every one to secure the possession of an article that will yield him an immense amount of delight and solid instruction at all times. The simple part is most suited for the preparation, and the compound for the examination of most kinds of objects. In its simple form, besides being adopted by the Society of Arts, it is also described by Dr. Carpenter, in his work on the Microscope, as "peculiarly suited for educational purposes, being fitted in every particular for the examination of botanical specimens, small insects or parts of insects, water-fleas, the larger animalculæ, and other objects, such as young people may readily collect and prepare for themselves." *Instructions.*—To use this Microscope as a simple instrument, screw the pillar on to the top of the box, one or more of the magnifiers M being screwed into the arm L. The object for examination should then be put on the stage O, and the eye, being placed close to the magnifiers, the light is thrown through the object from the mirror D; the adjustment for focus being obtained by turning the milled nut at the side. By using the magnifiers singly or combined, seven different powers may be obtained, care being taken, when using more than one, that the deepest or smallest glass is nearest the object. To use the compound body, unscrew the simple powers M M M, and screw the body B into the arm L, the proper focus being obtained by turning the milled nut as above. The small powers in B may also be separated, each one or combination giving an increase of magnifying power quite one half more than each one or combination of the simple powers. For viewing



opaque objects, the condenser C must be fitted into the stage, and the light condensed through the lens upon the object. P is a small pair of forceps, the ball piece of which fits into the hole in the stage, and by squeezing the twisted wire between the thumb and finger they open, when any object may be placed between and held for examination. T is a pair of tweezers. A is an animalculæ cage, for confining insects, holding water with animalculæ, etc., whilst being examined. Some strips and a flat round glass are sent in the box, for placing objects upon; also some thin glass for mounting objects. The magnifying powers of this microscope, in its simple form, are as follows:—No. 1, 36 times; No. 2, 64; No. 3, 100; Nos. 1 and 2 combined, 169; Nos. 1 and 3, 256; Nos. 2 and 3, 400; Nos. 1, 2, and 3, 676. In its compound form the powers B separate into three parts, No. 1 being equal to 70 times; No. 2, 100; No. 3, 160; Nos. 1 and 2 combined, 260; Nos. 1, 2, and 3, 1050 times, superficial measure. We have great satisfaction in being able to recommend this microscope to our readers and the gardening public.

GRAND NATIONAL ROSE SHOW.—The first Grand National Rose Exhibition, open to all Exhibitors, will be held in St. James's Hall, London, on Thursday, July 1st, 1858, when the following prizes will be awarded, according to the excellent schedule just laid before us by the Rev. S. Reynolds Hole, the Honorary Secretary. We give it the prominence of a special notice, under the conviction that it will be an exhibition of first-class character, and that a very spirited competition will take place. All who are fond of that Queen of Flowers, the Rose, will do well to avail themselves of it.—"Class I. *To Growers for Sale.*—A. For the best collection of Roses, three trusses of each variety: first, a silver cup, value ten guineas; second, a silver cup, value five guineas.—B. For the best collection of Roses, one truss of each variety : first, a silver cup, value five guineas; second prize, £3. Exhibitors in Class A cannot show in Class B.—C. For the best collection of Roses of forty-eight distinct varieties, to be shown in single trusses: first, a silver cup, value five guineas; second prize, £3.—D. For the best collection of Roses of twenty-four distinct varieties, to be shown in single trusses: first, a silver cup, value five guineas; second prize, £3. Exhibitors in Class C cannot show in Class D.—E. For the best collection of Moss Roses, to be shown in single trusses: first, a silver cup, value five guineas; second prize, £2.—F. For the best collection of Tea and Noisette Roses, to be shown in three trusses: first, a silver cup, value five guineas; second prize, £2.—G. For the best collection of Gallicia Roses, to be shown in three trusses: first, a silver cup, value five guineas; second prize, £2.

"Class II. *To Amateurs regularly employing a Gardener.*—H. For the best collection of Roses, to be shown in single trusses: first, a silver cup, value ten guineas; second, a silver cup, value five guineas; third, a piece of plate, value £3.—I. For the best collection of twenty-four distinct varieties, to be shown in single trusses: first, a silver cup, value ten guineas; second, a silver cup, value five guineas; third, a piece of plate, value £3.—J. For the best collection of twelve distinct varieties, to be shown in single trusses: first, a silver cup, value five guineas; second, a piece of plate, value £3; third, ditto, £2.—K. For the best collection of six distinct varieties, to be shown in single trusses: first, a silver cup, value five guineas; second, a piece of plate, value £3; third, ditto, £2.

"Class III. *To Amateurs not regularly employing a Gardener.*—L. For the best collection of twenty-four distinct varieties, to be shown in single trusses: first, a silver cup, value five guineas; second, a piece of plate, £3; third, ditto, £2.—M. For the best collection of twelve distinct varieties, to be shown in single trusses: first, a silver cup, value five guineas; second, a piece of plate, £3; third, ditto, £2.—N. For the best collection of six distinct varieties, to be shown in single trusses: first, a silver cup, value five guineas: second, a piece of plate, £3; third, ditto, £2.

"*Open to all Classes.*—For the best group of Roses, arranged in a vase or basket, a silver cup, value five guineas.

"By the kind permission of Colonel the Honourable G. F. Upton, C.B., the Band of the Coldstream Guards will be in attendance.

"*Notice to Exhibitors.*—Exhibitors must give notice to the Secretary, on or before the 20th June, as to the Classes in which they propose to exhibit, and the space which they will require. Roses intended for exhibition must be in St. James's Hall before 11 A.M. They must be shown in moss, and in boxes painted of a green colour. It is requested that the flowers may be named on sheets of card or paper, placed in front of the boxes, and not by labels attached to the individual blooms. By a truss is meant a rose with its buds and leaves, cut from wood of the current year, so as to be exhibited in the most natural manner, as grown upon the tree. Any addition to the original truss will disqualify the pan. In cases (very rarely occurring) where neither buds nor foliage can conveniently be included with the flower, a single rose may be exhibited. The name of any person showing Roses not grown by himself will be publicly advertised on discovery, and the exhibitor will be excluded for the future from competing at the National Rose Show. Subscribers, on payment of their subscription, will receive schedules, with a list of subscribers, and tickets of admission to the Show. Subscriptions are received by Mr. Thomas Rivers, Sawbridgeworth, Herts; Mr. William Paul, Cheshunt, Herts; Mr. Charles Turner, Slough, Bucks; and the Rev. Reynolds Hole, Secretary, Caunton Manor, Newark, Notts. Further particulars will be published hereafter as to the admission of the public, etc., etc. By order of the Committee, S. Reynolds Hole, Honorary Secretary."

TECOMA GRANDIFLORA.—This fine plant is a native of China, but is sufficiently hardy to flower well in the open air of this country. Plants of it existed against an open wall at Claremont for more than twenty years. It flowers best, however, in a temperate house. It grows well in peat and loam, and may be increased by eyes or cuttings in a gentle heat. Plants originated from single eyes will frequently flower the same year, when about a foot high.—*T. K. S.*

WISTERIA SINENSIS.—This very ornamental plant is now well known, and is deserving of a place in every garden, both in the greenhouse and on the open wall, where it flowers in profusion, although, unless in a warm corner, it sometimes suffers a little from the spring frosts. It is a good plan to adopt with this plant to place it against the wall beside a greenhouse, where a branch may be introduced, and it will come into flower much sooner than the rest of the plant against the open wall, and the latter will blossom in succession. To increase stock, shoots may be layered in pots plunged in the soil at the foot of the wall. I have had three plants in flower this spring, two out of doors and one in, and never saw them bloom in such profusion as they have done this year.—*T. K. S.*

FARFUGIUM GRANDE.—On the following day I went down to the plains, and onward to Ningpo. In the garden of an old Chinese gentleman here I met with the beautiful new herbaceous plant, having rich blotched or variegated leaves, which has since been named by Dr. Lindley *Farfugium grande*. It was growing in a neat flower-pot, and was evidently much prized by its possessor, and well it might, for it was the most striking looking plant in his garden. He informed me he had received it from Peking the year before, and that at present it was very rare in Ningpo, but he thought I might be able to procure a plant or two from a nurseryman in the town, to whom he had given a few roots. I lost no time in paying a visit to the nursery indicated, and secured the prize. It has reached England in safety, and will shortly be a great ornament to our houses and gardens.—*Fortune's Residence among the Chinese.*

IRVINE'S BRITISH PLANTS.—We are glad to find this excellent work is now complete, and may be had bound in one neat volume for a small sum. We regard it as the best and most complete work extant of its kind. To students of British Botany it is invaluable, and we feel under an obligation to make special mention of it for their guidance. In the compass of a pocket volume they have a work arranged on the natural system, containing the latest discoveries and improvements, illustrated by cuts, and describing every British plant, and including such as have become naturalized moreover, it begins, as all works of instruction should begin, with an ample explanatory introduction. Works such as those of Withering, and others of a like class, have "served their day and generation," and must now be laid aside to be replaced by the more scientific productions of later botanists, similar to the one now before us. Of course works containing faithful botanical drawings, as Sowerby's English Botany and Hooker's British Flora, will always occupy their position as standard works of reference; but to those who are unable to purchase these more expensive books a work like the present, got up in the best style of typography, is the very thing they want, and, until Professor Irvine filled up the hiatus, was a desideratum.

VANDA CŒRULEA IN ITS NATIVE HAUNTS.—"We left Nurtiung (Khasia) on the 4th of October, and walked to Pomrang, a very long and fatiguing day's work. Near the village of Larnai, oak woods are passed, in which Vanda cœrulea grows in profusion, waving its panicles of azure flowers in the wind. As this beautiful Orchid is at present attracting great attention, from its high price, beauty, and difficulty of culture, I shall point out how totally at variance with its native habits is the cultivation thought necessary for it in England. The dry grassy hills which it inhabits are elevated 3,000 to 4,000 feet—the trees are small, gnarled, and very sparingly leafy, so that the Vanda which grows on their limbs is fully exposed to the sun, rain, and wind. There is no moss or lichen on the branches with the Vanda, whose roots sprawl over the dry, rough bark. The atmosphere is on the whole humid, and extremely so during the rains; but there is no damp heat, nor stagnation of the air, and at the flowering season the temperature ranges between 60° and 80°; there is much sunshine, and both air and bark are dry during the day; in July and August, during the rains, the temperature is a little higher than above, but in winter it falls much lower, and hoar-frost forms on the ground. Now this winter's cold, summer's heat, and autumn's drought, and above all, this constant free exposure to fresh air and the winds of heaven, are what of all things we avoid exposing our Orchids to in England; it is under these conditions that all the finer Indian Orchideæ grow. We collected seven men's loads of this superb plant for the Royal Gardens, at Kew; but owing to unavoidable accidents and difficulties, few specimens reached England alive. A gentleman who sent his gardener with us to be shown the locality, was more successful; he sent one man's load to England on commission, and though it arrived in a very poor state, it sold for £300, the individual plants fetching prices varying from £3 to £10. Had all arrived alive, they would have cleared £1,000. An active collector, with the facilities I possessed, might easily clear from £2,000 to £3,000 in one season by the sale of Khasia Orchids. On the following day we turned out our Vandas to dress the specimens for travelling, and to preserve the flowers for botanical purposes. Of the latter we had 360 panicles, each composed of from six to twenty-one broad pale-blue tesselated flowers, three and a half to four inches across; and they formed three piles on the floor of the verandah, each a yard high. What would we not have given to have been able to transport a single panicle to a Chiswick fête."—*Hooker's Journal.*

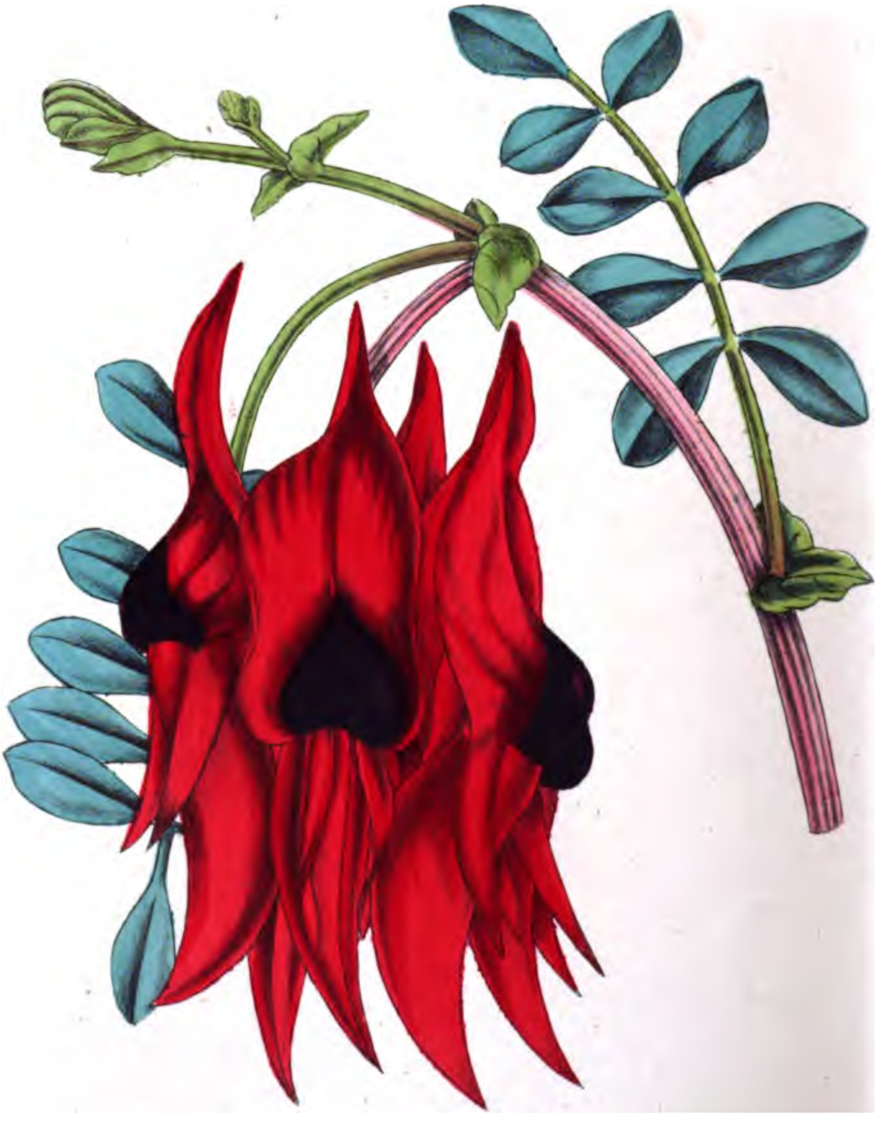
CUTTINGS.—In taking off and striking cuttings, it should be remembered that the power of protruding roots rests almost entirely on those parts of the stem called joints, or where the leaves and buds are already formed. Cuttings, therefore, should in all cases, excepting in those of a few free-growing shrubs, be cut transversely across, close under a joint or bud; and this should also be done in a careful manner, for if not properly performed, and the part be bruised or ragged, it would tend to rot and decay, rather than to throw out roots, or form those granular callosities which in many plants are first formed, and lastly roots. The proper time for taking off cuttings of *evergreen* plants is when the sap is in motion, in order that by its returning by the outer side of the bark it may form a ring of granular matter, from which roots will protrude; and the point of separation in removing the cutting should be just where the shoot of the present season's growth commences, taking a thin slice of that of last year's growth attached to it; or if at a more advanced period of the season, and in the case of plants that make two growths in the year, taking a small portion of the wood of the first growth, which will have attained a firm consistency, and in general be of a browner or darker colour. All soft-wooded plants, not having too much pith, will root freely, if so taken off. But there are others that are commonly denominated hard-wooded plants, that root with more difficulty under all circumstances. With such plants it has been proposed to remove a ring of bark previously, and where this operation has taken place, a callus, or ring of granular matter, will be deposited; if then separated from the parent plant and inserted in the ground roots will speedily protrude. Some hard-wooded plants take a long time to root, in certain cases even a year is not long enough —and others would probably never root at all if kept planted in mould in the centre of the pot, even if the soil were most favourable for the growth of the plant; yet they will root in sand. Some soft-wooded plants will root freely if in bottles of water, and it would be exceedingly interesting to ascertain to what extent this practice could be made available.—*T. K. S.*

PAULOVNIA IMPERIALIS.—At Lord Stamford's, Enville Hall, a fine specimen of this noble plant has flowered profusely in the conservatory, in April; also Rhododendron Edgworthii, Dalhousianum, and lucidum have been very fine.—*J. Aiton.*

GOLDEN RULES FOR GARDENING.—Never work with bad tools. The difference between the work done in a month would buy a set of new ones. Have a place for every tool, and never leave one out of its place; or, to go further, "a place for everything and everything in its place." Never waste animal or vegetable refuse. The very soap-suds from the laundry are rich manure. Have all flower-pots washed, dried, and put away as soon as they are empty. Never fill a pot so full of soil but that it may hold water enough to go through it; every pot should have an inch of space above the compost. Never grow a bad variety of anything if you can help it. It takes the same room, and wants the same attention as a good one. Never buy cheap seed. It is only by getting good prices that a seedsman can supply articles to be depended on. Cover all seeds with at least their own thickness of soil; but as some of it gets washed off, you must allow for it. Never subject a plant to a rapid change of temperature. Sudden check or sudden excitement are equally injurious. Keep your plants clean. Dust and dirt on leaves make the plant unhealthy, and will in time kill it. Never grow a plant too fast; it is no credit to you, because anybody can do it, and it spoils the plant to a certainty. Mow lawns before the dew is off the grass, unless you have a machine which cuts it best when dry. Carefully preserve the fallen leaves of trees, and procure as many as you can; when rotted into mould the produce is invaluable. Keep your seeds, bulbs, tubers, etc., in a place where neither heat, nor frost, nor damp can reach them, for either of these would destroy many. Mind your own affairs. Let all the errors you see in others' management suggest corrections in your own. Let not the moisture that runs from the dung-heap be wasted: it is too good to be lost. Never allow weeds to bloom; it is the worst proof of thoughtlessness. One day devoted this year will save a month's application next. Never remove a plant from one place till you are ready to put it in another, unless to get rid of it.—*Life Illustrated.*

OBITUARY.—The science of Horticulture has to deplore the recent loss of three of its most devoted disciples—M. André Donkelaar, M. Galeotti, and Mr. M'Ewen. The first, after spending a long and useful life, aged 75 years. André Donkelaar was born March 9th, 1783, at Vleuten, in the province of Utrecht, Holland, and even in his infancy was familiar with the rudiments of botany, and the practice of horticulture, towards which, through life he entertained a constant attachment. He was successively gardener to M. De Smet, who possessed a garden of the first-class near Antwerp, then superintendent of the Botanic Gardens of Louvain, in Flanders, and lastly, of those at Ghent, which appointment he obtained on the death of M. Mussche, in 1835, and continued to hold until the time of his decease. M. Donkelaar was a most estimable man in all the relations of public and private life, a skilful botanist, and a most successful gardener. M. Henrii Galeotti, was born at Versailles, in 1814; in 1835 he sailed from Hamburg on a botanical mission, under the patronage of M. Vandermalen, of Brussels, to collect plants in Mexico, and successively explored the districts of Xalapa, las Vigas, Perote, Puebla, Iztaccihualt, Mexico, Ayotla, Chalco, etc., ascending the mountainous regions to a height of 15,000 feet, nearly the limits of perpetual snow; after five years spent in the active prosecution of his researches he returned to Europe in 1840. In this expedition he collected from 7 to 8,000 dried specimens, many of which were entirely new to science. After his return M. Galeotti received the appointment of director of the Brussels Botanic Garden, which unfortunately he did not long retain, being carried off by a pulmonary complaint, at the comparatively early age of 43 years and six months, and assuredly much regretted by his friends and by men of science.

On the 10th May, at Turnham Green, Mr. George Mc. Ewen, in the 38th year of his age. During the short period that he acted as superintendent of the Horticultural Society's Gardens, he fulfilled his arduous duties greatly to the satisfaction of the Society, whilst the improvements effected by him in the short space of fourteen months show him to have been a skilful and very excellent gardener; his loss is a subject of regret to a numerous circle of acquaintance.



CLIANTHUS DAMPIERI

The Floricultural Cabinet.

JULY, 1858.

ILLUSTRATION.

CLIANTHUS DAMPIERI.

SEEDS of this remarkably handsome plant were received by Messrs. Veitch and Son, from New Holland, who have recently exhibited flowering plants that excited universal admiration from the great beauty of their richly coloured blossoms, combined with graceful form and habit.

Clianthus Dampieri was originally made known through the figure and description given of it by that famous old navigator, Captain William Dampier, about a hundred and sixty years since; after him, dried specimens had been for a long time in our herbaria before plants were raised in this country. It is gratifying to find the name of its original discoverer, Dampier, associated with that of this plant, as it is also with another, for it cannot be denied that he was a man of great ability and of no small scientific acquirements, united to a persevering and inquiring mind, which, considering him for so many years the associate of some of the most desperate and abandoned crews amongst the buccaneers and rovers that infested the tropics of both eastern and western hemispheres at the time to which we allude, is much to his honour. Turning over the pages of good Mr. Evelyn, we find him in contact with the great seaman, and have his confirmation of our opinion in the following words:—"1699, August 6th, I dined with Mr. Pepys, where was Captain Dampier, who had been a famous buccaneer. * * * He seemed a more modest man than one would imagine by the relation of those he had associated with."

For the greenhouse we can scarcely imagine a finer plant, and being of easy cultivation it will no doubt become very popular; it certainly deserves a place in every collection.

ON THE CULTIVATION OF THE ORANGE, CITRON, ETC.

BY AN OLD SUBSCRIBER.

BEFORE describing my method of cultivating these plants, I cannot avoid making the remark that, under the usual plan of treatment pursued with regard to Orange-trees and others of that class in the greenhouse, however fine the plants, they merely serve the purpose of ornament; and not only is the fruit generally worthless, but not produced in that abundance that it may be had by a different system of management. I believe this failure is attributable to the common practice of taking the trees out of the greenhouse at the time the general greenhouse stock is put out in summer; whereas the proper course that should be followed, is to keep them in the house through the whole season; and after the removal of the other plants, the Oranges might receive the peculiar treatment necessary to bring them into proper bearing. The compost I use is as follows:—to twelve barrowfuls of strong turfy loam add six of decayed horse-dung, three of vegetable mould, and one of white sand; these are to be properly incorporated for twelve months previous to being used. From the experience my practice has given me, I do not think this tribe requires much warmth in the winter months; I therefore never suffer my houses to be heated above fifty degrees by fire-heat, until the end of February or beginning of March, when the trees, if in good health, will begin to show blossom; the fire-heat should then be increased to fifty-five degrees, but the houses ought never to be heated above sixty-five at this time by sun-heat, the excess of which must be checked by the admission of air; indeed, the more air the trees have during the time of blooming, the more certain will be the crop of fruit. My trees are washed with a hand-syringe about twice a-week in the spring months, advantage being taken of the middle of the day for that work in cold weather; in summer they are washed and syringed every morning. During the time the trees are in bloom, they require more care in respect to watering; I then use a syringe with a rose, the holes of which are so small that they will scarcely admit a fine needle to pass through them, and clean soft water is used for all these purposes. As soon as the fruit is set, I begin to water the trees at their roots with liquid manure, made by mixing equal quantities of cow and sheep dung with a little lime in a large quantity of water. This mixture should be frequently stirred for a week or ten days previous to being used; and, when applied to the trees, it ought to be about the consistence of cream, giving more or less, according to discretion, the trees having no other sort of water to the roots during the summer months. In the early part of June, the greenhouse plants are taken out for the summer. I then begin to force the trees by keeping the heat in the house as nearly as possible to seventy-five degrees; I do not consider that either Oranges, Citrons, Lemons, or Limes, can be grown fine and good with less heat. Whilst the forcing is going on, particular attention is paid to the watering above described. This month I also give a rich top-dressing to the trees, whether they be in borders, boxes, or pots. This is composed of turfy loam, leaf-mould, poultry, sheep, and horse dung, previously laid in a heap for a year to decompose thoroughly. This top-dressing is of the greatest advantage in swelling the fruit. In laying it on, the soil is carefully removed above the roots with a small hand-fork, and the top-dressing then filled in.

With regard to pruning, early in February the trees are looked over, for at that time it is apparent which wood is likely to be fruitful; and as a certain quantity of old branches are cut away yearly, I remove those that seem least promising, and thus make room for younger and better wood. If the trees afterwards grow strong, the shoots are shortened according to their strength. When the fruit is thinned, the quantity left on must depend on the strength and age of the tree also, and two fruits should never be left together. The best time to begin is when they are about the size of small plums.

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PLANTS FOR SUSPENDING IN THE GREENHOUSE OR STOVE.

BY CLERICUS.

IN a late number of the *Cabinet* a few judicious remarks were made respecting plants for suspending in baskets in the greenhouse, etc.; as a few things were then omitted, I have taken leave to notice them, as it cannot be denied that when so arranged, the effect is doubled by the introduction of fine specimens suspended from the roof. Orchids suggest themselves as particularly adapted for this mode of treatment, and there are several that require no other than greenhouse treatment, although the stove affords accommodation to a far greater number.

Besides Orchids, however, there are numbers of plants with trailing or climbing habits, which, when suspended in the greenhouse or stove, thrive quite as well as they do when commonly treated, and form beautiful features in those erections. To speak first of stove species, the several kinds of *Æschynanthus* are admirably suited for the purpose. Fastened on a log of wood, with just their principal roots protected by moss, or placed in a wire or rustic wooden basket, filled with *sphagnum* moss, they thus receive the most suitable management that could be bestowed, and their branches, hanging down into the air, and flowering at their extremities, have a singularly ornamental effect. *Columnea Schiediana*, treated in the same way, only favoured with a little soil in the basket, or even hung up in a small pot, which its branches soon surround and conceal, makes another attractive specimen. I have no doubt, likewise, that *Columnea scandens* would succeed equally well, and be fully as handsome, in the same circumstances. *Bilbergias*, *Dyckias*, and their allies, with a small ball of moss tied round their roots, I have lately seen depending from the roof of a stove, and blooming in this way almost immediately, while other and similar specimens had been several years in pots without flowering. *Russellia juncea* is well known to look best when hung up in a pot; its interesting rush-like branches, prettily studded with their bright red blossoms, waving airily far beneath the bottom of the pot. *Thunbergias* are particularly fascinating if suspended, and their branches left to depend naturally. The points of the shoots sometimes require a little checking, but this is done with the greatest facility. The varieties of *Alata*, and all the kinds related to it in habit, and in the form of their flowers, are what I allude to. In the same way *Lantana Selloviana* would compose an elegant mass, though it might be grown as well in the greenhouse. That some of the *epiphyllous* sorts of Cacti will grow most luxuriantly in moss, either fastened by wire into a ball or placed in a wire basket, is a fact that needs not now to be confirmed. *Cereus speciosus*, *Epiphyllum Ackermanniæ*, *splendidum*, *alatum*, and others, with *Cereus flagelliformis*, are very engaging when so cultivated, and the last named plant may also be kept in a pot; of course, I mean that all should be suspended. *Epiphyllum truncatum* and its varieties, when reared from cuttings, have a beautiful effect when suspended in a small pot. Ferns, moreover, and *Lycopodiums*, present an almost endless variety of subjects for such management.

It would be tedious to go on enumerating species, and I shall only add, that if the atmosphere of the stove be kept moist, *Ficus elastica*, a great quantity of the stronger Ferns, some *Catasetums* and *Grammatophyllums* among Orchidaceæ, and doubtless most of those shrubby or other plants that emit their roots into the air, will thrive in perfection when simply suspended, without either soil, moss, pot, basket, or anything else about their roots. One other stove trailer, half an epiphyte, which I have omitted hitherto to mention, deserves prominent notice on account of its extreme suitability to our purpose. It is a species of *Chlorophytum*, probably *orchidastrum*, which protrudes long shoots all around it, that hang down in the air, bearing shoots, roots, and panicles of pretty white flowers at intervals of nine inches or less. It flourishes in either soil or moss, and is an excellent plant for affixing to those small tree-like branches that are well adapted for sustaining Orchidaceæ.

For greenhouses the very beautiful *Saxifraga sarmentosa* is often suspended, both in windows and greenhouses; though not, I think, with a frequency proportionate to its deservings. *Linaria Cymbalaria*, also, though common on most old walls in some districts, and occasionally seen hung up in cottages, is every way worthy of suspension from the roofs of greenhouses, where it produces a most charming effect. *Fuchsias* are many of them very appropriate for hanging up to a roof in pots. The prostrate *Verbenas* may, by a slight preparation, be made to look well in a like position; as do also *Lobelia Erinus* and its allies, with *Mimulus moschatus*, and the varieties of a kindred nature. The species of *Mesembryanthemum*, or the more trailing of them, with *Campanula rupestris*, *fragilis*, *hirsuta*, and a multitude of plants that resemble them in their growth, might, by a trifling share of attention, be rendered admirable objects for suspension. The treatment they would need is, to stop the shoots that are inclined to ascend, encourage those which evince a tendency to curve over the edge of the pot, and pick off the flowers that show themselves on the upper surface, to throw more strength into the pendant branches.

Another group that only demands a little management to become some of the very best subjects for suspension, consists of the dwarfer and less straggling sorts of climbers. It is notorious that the branches of climbing species will hang down if not upheld by anything; and, by a timely suppression of extra luxuriance, or by shortening the main shoots so as to prevent them from extending too far, as well as to occasion a free development of laterals, they will soon become all that could be desired. The *Kennedyas* will aptly illustrate the class of which I am speaking.

Even some annuals, flowered in early spring, such as *Nemophila insignis* and *atomaria*, *Nolana atriplicifolia*, etc., create an exceedingly good display, when suspended in pots in the greenhouse.

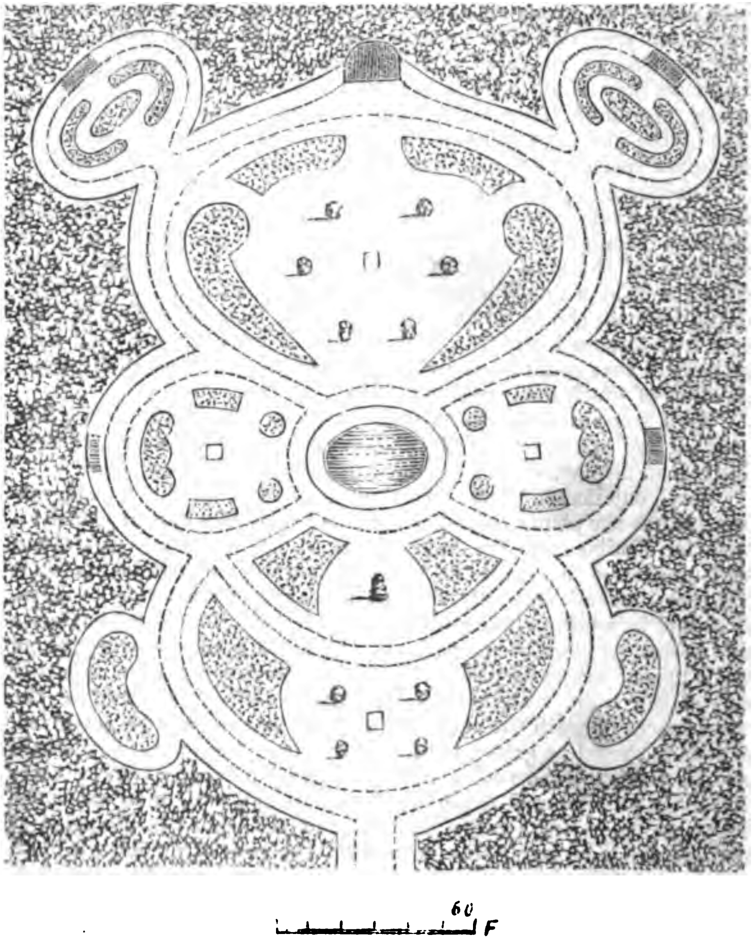
Space enjoins me to finish this paper, which I shall do by suggesting, that as the plants named, with many others to whose appropriateness for similar ends the habits of these will serve as a guide, can with readiness be made to grow downward, or rather, as their branches depend naturally, or may by culture be induced to do so, it would be adding a fine and engaging feature to both greenhouses and stoves, to place them sparingly, and in the greatest variety, along the edges of stages or pits, and let their shoots hang down on either side of the walk, whether this be flanked with a plain wall or the open spaces beneath the stages. Here I mean, as will be perceived, that they should be grown in pots; but where there are pits, it would not be amiss to construct a narrow channel or gutter, about three inches in breadth and depth, on the top of the wall, or to widen the latter, so as to leave holes, from four to six inches in diameter, at certain distances along the curb, with the view of planting in both specimens of the description of plants herein set forth. I am satisfied, from what I have witnessed, that this practice would produce a degree of elegance to which most persons are yet complete strangers.

* * *

The Rose Maggot.—This pest has already made considerable demonstrations, and I fear will be more than usually prevalent this year. I find it eats not only into the buds and leaves, but actually burrows into the leaf-stalks. Has any one else noticed this fact? The leaves of my roses in the forcing-house droop with it, and speedily wither. I have detected the insect inside the stalk with a microscope, and have no doubt it may be found in many cases to be the cause of a malady otherwise unable to be accounted for. Let growers look to it.—*P. B.*

DESIGN FOR A SHRUBBERY FLOWER-GARDEN.

BY T. RUTGER, ESQ.



THE annexed design is intended for a Shrubbery Flower-Garden. The larger clumps in the interior may be appropriated to the smaller species of choice shrubs or American plants. The compartments, one on each side of the pond, are intended for flower-gardens. The clumps on grass, and those at the extreme angles, which are on gravel, may be assigned for Dahlias, Hollyhocks, or Roses. The small squares indicate sites for statues, or vases.

A seat is shown at each end of the flower-gardens, also in the Dahlia or Rose compartments; and the seat at the end is intended to be placed in an alcove. The spaces, one on each side of the alcove, as far as the Rose and Dahlia compartments, may be set aside for American plants.

GLEANINGS AMONGST THE HARDY PERENNIALS.

BY CLIO.

(*Continued from page* 131.)

THE large, showy, orange-yellow blossoms of *Helianthus multiflorus* adorn the shrubbery border from July to September, the plant usually grows five or six feet high; it bears the smoke of London better than many others, and is a native of North America. The variety with double flowers is that most frequently cultivated. As an edging in spring how beautiful are the different double Daisies; when divided in the autumn, and planted in a trench, with the roots carefully spread out, and pressed down, their effect is greatly increased. Double Primroses greet the eye at the same period with their blossoms; the double yellow, which is said to have been the first known, is very scarce; as are also, in our eastern counties, the white, red, crimson, and black; the lilac is more abundant. If any hints could be given for raising these double sorts from seeds of single ones, the attempt to do so would be interesting to amateurs. In May and June the richly indented leaves and bright orange petals of *Trollius Asiaticus* decorate the garden; it requires watering in dry seasons, and is found wild in Siberia and Cappadocia. *Verbascum Myconi* grows on the Pyrenees; its blossoms are highly ornamental, arising in May from a short purple stem, their colour a bluish purple, with white and orange eye, and continuing long in bloom; it requires a north aspect, and to be carefully watered in dry weather; the leaves are dark green, indented, and minutely fringed, somewhat resembling in their manner of growth those of the Primrose. In the summer, *Aquilegia Canadensis* expands its graceful orange and scarlet flowers; it may be increased by seeds or by dividing the root in autumn or spring. The very large blossoms of *Campanula grandiflora* are open in July, previous to which they resemble an air-balloon, so that by some it has been called the Balloon Plant; its native locality is Siberia, also Tartary: it is increased with difficulty. *Lychnis Chalcedonica* appears to have been the favourite flower of Parkinson, as in the engraving of him prefixed to his "*Paradisus Terrestris*," he is represented with the double Lychnis in his hand. The brilliant scarlet of its petals recommends this well known plant, which in its single state grows spontaneously in most parts of Russia, expanding in June and July: suitable for the shrubbery, and climbing, if supported, to the height of four or five feet. *Coronilla varia* exhibits in June and during the summer its little bunches of pea-shaped white and lilac blossoms; it is met with in various localities in Germany. The Apennine and Pyrenean mountains produce *Ranunculus amplexicaulis;* its numerous delicate white flowers, with yellow eye, resemble in shape the Wild Rose; they expand in April and May; the leaves are of a glaucous hue; it may be propagated in autumn by dividing the roots, and in a pure air may be cultivated successfully. Fatal foe to the *Musca pipiens*, and some other smaller species of fly, is *Apocynum Androsæmifolium;* it is about two feet in height, shooting from the ground in spring like heads of young asparagus, and expanding numerous pale pink flowers on small branches from July to September; these, when open, attract painful attention, from mostly containing a poor captive, which when dead falls out. It has been found in the vicinity of Nova Scotia; and its creeping roots may be parted in spring and autumn, but do not readily take root in a fresh spot. *Hedysarum obscurum* has elongated, pea-shaped blossoms, of a beautiful rosy-purple; its leaves resemble those of the white Jessamine; it is a small plant, suitable for decorating rockwork in July and August, and is found wild on the Alps of Germany and Switzerland. Flourishing in wet places in Virginia, *Mimulus Ringens* produces its pale violet-coloured flowers in July and August; Miller recommends the seeds to be sown as soon as ripe. *Sisyrinchium gramineum*, from Virginia, has lively, star-like, bluish petals, vanishing at the tips to the size of a thread, with orange-yellow eye, opening in June and July, and succeeded by numerous seed-vessels; its stalk is very curious, giving, as Curtis expresses it, a good example of the "caulis anceps." From North America was received the pretty *Dracocephalum Virginianum*, rising two feet high, and producing its numerous shaded pink Foxglove-like flowers from July to September; it succeeds best in a moist situation. The three-petalled singular flowers of *Trillium erectum* are purple, and are backed by three of its green calyx; its native locality is North America, and its height about nine inches; it requires a moist and shady situation; its three large, pale-green leaves, Trefoil-like in position, make it a very unusual looking perennial. *Rhododendron Chamæcistus* was raised from seeds, sent to the Loddiges, from Austria, and found growing on the summit of a mountain; it is of difficult culture, requiring bog-earth, northern aspect, and sheltered situation; its small beautiful blossoms are pale pink, animated by deep purple stamens; it is rarely met with, and rises from the ground with several spreading stalks, thickly covered with small fleshy leaves.

ON THE RHODODENDRON.

BY A NOBLEMAN'S FLOWER-GARDENER.

RHODODENDRONS have become so numerous of late years that they may almost, if not quite, bear comparison in this respect with any florists' flower. The importation of species has been great, and the increase of hybrid varieties still greater; and this is by no means surprising, when we consider the many cultivators who have turned their attention to so glorious a flower. The result, as might naturally have been expected, is, that out of the many hundred varieties, a considerable number are very closely allied in habit, colour, and marking. Nevertheless there still remains a vast number of very beautiful distinct sorts, and as ornamental shrubs they have no compeers. It is not to be wondered at, therefore, that the Rhododendron is a very favourite shrub, and no grounds are complete without a choice collection. A great deal has been written by various authors and growers as to the most suitable compost for them. I believe, however, that some of our most celebrated growers use and recommend nothing else but peat or bog earth, that is to say, earth full of fibre and decayed roots, and this is confirmed by my own experience during many years of culture. Messrs. Rollison, Waterer, and other noted growers, prefer it, and their plants bear out the assertion that it is the best adapted for the growth of the Rhododendron of any soil that can be made use of. One great point to be attended to is to have the beds well drained, so as to carry off the water quickly; for although in America they grow in a soil that is swampy, at least at the bottom, there are many circumstances under which they there grow that we cannot imitate in our country, and without which too much moisture is injurious. Where plants are grown in pots, the admixture of a little good loam is to be recommended, and also more especially with young plants, as tending to promote a quicker growth.

While on this subject, I avail myself of the opportunity to give a few hints on the general treatment of hardy Rhododendrons, as requested by you when viewing my collection in bloom last season, and shall commence with raising plants from seed. The seed itself should never be collected until perfectly ripe, much of it is damaged from being gathered in a green state, and when collected it should be preserved in a stoneware jar, as if kept in papers a considerable quantity will be certain to be lost, as it is one of the finest seeds we have, and, if obtained from a choice sort, such a waste is much to be regretted. When it is sown, it should be mixed with a quantity of sand, otherwise it can never be evenly distributed on the soil. In sowing it I use wide pans, filled with two parts fibrous peat, and one part of old turfy loam, well mixed together; it should be rubbed through a coarse sieve so as to get rid of lumpy pieces, and the pans must have plenty of drainage, crocks, etc. The thinner the seed is sown the better for the young plants; when it is sown, sift a little compost over it from a fine sieve, just enough to cover the seed being quite sufficient for the purpose. Great care is necessary in watering it, for, being so fine and light, it is liable to be washed away unless the water be applied in a very gentle manner. It is best to use an extremely fine perforated syringe, one that will allow the water to fall as gentle as dew, and completely saturate the surface without disturbing the seed. After this the pans should be placed in the greenhouse, and covered with bell-glasses, not only to prevent the moisture evaporating, but to preserve them from drying winds when the doors and lights are open, for the soil should on no account be allowed to become dry until the seed is up. As soon as it has begun to vegetate, shading is necessary to keep the young plants from the sun, and the glasses may be left off for a few hours, morning and afternoon; besides this, an occasional watering is all they require until large enough to be pricked out. For this operation, provide fresh pans, or large pots, with similar compost as for the seed-pans, and in like manner well drained. Take up the seedlings carefully, and prick them in at least an inch apart. When put in, they may be placed in a cold frame, shaded from the heat of the sun for a few days, and the same care as to watering bestowed on them as before, for, as they are still very small and tender, they would be liable to be washed out or laid bare at the root. After they have become well established they may have the full benefit of the open air in a place where the mid-day sun cannot reach them; and when grown large enough for them almost to touch each other, prepare a bed for the reception of the young plants, by levelling it to an even surface. In this plant out the seedlings about six inches apart every way, and give them a good watering. One caution is here necessary, to avoid planting too deep, for, if placed deeper in the soil than they were in the pans, many of them will die off, especially the weaker plants. Here they should be frequently watered, and have hoops placed across the beds to screen them by mats or canvas. When left to grow for flowering, the distance apart should not be less than one foot, they will therefore require to have every other plant taken up and replanted in another bed before they are large enough to flower; after this the young plants may be allowed to grow on without any check until they bloom, as seedlings are anxiously looked to for new varieties, and if any of the leading shoots are taken away, this period would be retarded. Where habit and foliage indicate a considerable difference, and it is desirable to hasten the bloom, a strong shoot may be grafted on a common healthy stock. During the heat of summer, the beds should frequently be well soaked with water, for one-half the failures, or plants whose buds do not set well, may be traced to a want of sufficient moisture. Those who desire to raise new varieties shôuld sow seed annually, and be prepared to expect many failures and disappointments in obtaining valuable novelties. I would recommend hardy varieties to save seed from, because their management is attended with less trouble and more certainty, and when a good, distinct, hardy kind is raised, it is so much the more valuable; for although some of the tender Rhododendrons may be more handsome, and many of them undoubtedly are so, the hardy sorts are much more generally grown.

(*To be continued*)

THE METROPOLITAN EXHIBITIONS.

CRYSTAL PALACE.—The first of the Crystal Palace exhibitions for the season took place on the 22nd May, under very favourable circumstances; the weather was propitious, and the assembly of visitors to see the choicest productions of flowers and fruits, and to view the well-kept grounds and magnificent building, with its treasures of Nature and Art, was, as usual, very great. As an exhibition of horticultural skill, the present was a highly successful one, and the arrangements, if possible, were better than before—in fact, the enterprising and spirited managers appear to be determined to keep up the reputation of these exhibitions by every means.

One of the principal features of the show was the *Azaleas*. Of these there were some magnificent specimens, and a few new sorts, of great excellence in form and delicacy of colouring; one variety, of the *Amœna* class, named *obtusa*, will prove a first-rate plant for decorative purposes; it is a small-petalled, abundant-blooming kind, of a rich orange-scarlet colour. The *Pelargoniums* were numerous from the usual exhibitors, and the varieties nearly the same as those previously noticed at the last Regent's Park exhibition. The fancy kinds were also good. Among seedlings, we noticed Ariel (Fellowes), which took the first prize, and is a great addition to the light class. The following were also good:—Echo, Leviathan, Prince of Wales, Hyperion, Lady Canning, and a few others which we shall describe in another place. Gem of Undercliffe, the new double Geranium, was awarded a prize. Two scarlets, for bedding purposes, named Sheen Rival and Scarlet Globe, were shown by Mr. Kinghorn. Of *Fuchsias* there was no important novelty; and although most of the plants were well grown, and the number great, they were not so well flowered, generally speaking, as we have seen them on previous occasions. *Orchids* were very good, but not in such force as they generally are at these exhibitions. Messrs. Veitch and Sons had a scarce conifer, *Libocedrus tetragona*, a hardy tree, with beautiful foliage; and *Viburnum plicatum*, which will be much esteemed as a hardy shrub. A new Heliotrope, *La Petit Negresse*, was also shown, and will make a good bedding plant, being not only dwarf, but very free blooming.

The fruit, with few exceptions, was not so good as on former occasions.

The following is a list of the awards of first prizes for plants:—

Class I. *Twenty stove and greenhouse plants, in flower*, £25, to T. Whitbread, gardener to H. Collyer, Esq., Dartford. Class II. *Twelve stove and greenhouse plants, in flower*, £12, to B. Peel, gardener to T. Treadwell, Esq., Lower Norwood. Class III. *Six stove and greenhouse plants, in flower*, £6, to J. Peed, gardener to C. T. Gabriel, Esq., Streatham. Class IV. *Twenty stove and greenhouse plants*, £15, T. Jackson and Son, nurserymen, Kingston. Class V. *Twenty* *exotic Orchids*, £25, W. Gedney, gardener to Mrs. Ellis, Hoddesden. Class VI. *Fifteen exotic Orchids*, £15, to T. Jackson and Son, nurserymen, Kingston. Class VII. *Twelve exotic Orchids*, £12, to S. M. Carson, gardener to G. W. Farmer, Esq., Cheam. Class VIII. *Six exotic Orchids*, £6, to J. Green, gardener to Sir E. Antrobus, Bart., Lower Cheam. Class IX. *Ten greenhouse Azaleas*, £12, to S. M. Carson. Class X. *Six greenhouse Azaleas*, £6, to G. S. Dods, gardener to Sir J. Cathcart, Chertsey. Class XI. *Six greenhouse Azaleas* (*new kinds*), £3, to James Ivery and Son, nurserymen, Dorking. Class XII. *Six Chinese Azaleas*, £3, to James Ivery and Son. Class XIII. *Six Helichrysums*, £4, to W. Laybank, gardener to T. Maudslay, Esq., Norwood. Class XIV. *Ten Cape Heaths*, £7, to J. Peed. Class XV. *Six Cape Heaths*, £4, to W. Laybank. Class XVI. *Six tall Cacti*, £6, to J. Green. Class XVII. *Twelve Roses, in pots*, £10, to H. Lane and Son, nurserymen, Great Berkhampstead. Class XVIII. *Six Roses, in pots*, £5, to J. Terry, gardener to C. W. Puller, Esq., Youngsbury. Class XIX. *Twelve Calceolarias, in pots*, £5, to J. Dobson and Son, nurserymen, Isleworth. Class XX. *Six Fuchsias, in pots*, £4, to A. Bousie, gardener to the Right Hon. Henry Labouchere, Stoke Park, Bucks. Class XXI. *Ten Pelargoniums* (*amateurs*), £8, to W. Nye, gardener to E. Foster, Esq., Windsor. Class XXII. *Twelve Pelargoniums* (*nurserymen*), £8, to Charles Turner, Slough. Class XXIII. *Six fancy Pelargoniums* (*amateurs*), £4, to A. Bousie. Class XXIV. *Six ditto* (*nurserymen*), £4, to C. Turner. Class XXV. *New or rare plants*, £8, to Veitch and Sons, nurserymen, Chelsea. Class XXVI. *Hardy ornamental plants*, £2, to Veitch and Sons. Class XXVII. *Seedling Pelargoniums, of* 1857—8, 15*s*., to C. Turner, for *Ariel*. Class XXVIII. *Six Anæctochilus and Physiurus* (none shown). Class XXIX. *Twelve exotic Ferns*, £4, to John Summers, gardener to A. Mongredien, Esq., Forest Hill. Class XXX. *Miscellaneous:* for *Lycopodium denticulatum*, £2 10*s*., to J. Morris, gardener to Coles Child, Esq.; for *British Ferns*, £2 10*s*., to H. Lavey, gardener to E. A. De Grave, Esq.; for *Standard Azaleas*, £2, to H. Lane and Sons; for *Gloxinias*, £1 10*s*., to H. Lane and Sons; for *Cineraria Perfection*, £1 10*s*., to C. Turner; for *Achimenes*, £1 10*s*., to J. Dobie, Brighton.

HORTICULTURAL SOCIETY, CHISWICK, *June 9th.*—This was a tolerably good show, and the arrangements as well carried out as last year. The weather was fine, and there was a good attendance of visitors—not so great, however, as on some previous occasions. The gardens were in excellent order, while the improvements carried out by the late Mr. M'Ewen—whose early death we had occasion to allude to in our last—fully testify to his abilities in the responsible situation which he so well filled. The collections of plants were well grown, and most of them good.

To begin with general collections of stove and greenhouse plants, Messrs. Veitchs' deserve special notice. Their collection occupied a large share of the great conservatory; most of them were in bloom, and comprised fine specimens of *Orchids*, *Medinillas*, *Crotons*, *Ericas*, *Azaleas*, *Dracænas*, various *Palms*, *Clianthus Dampieri* (figured in the present number), *Azaleas*, *Thujopsis dolabrata*, *Rhododendrons*, *Anæctochilus*, *Pitcher Plants*, etc. Of new and rare plants their collection comprised the curious *Ouvirandra fenestralis*, with a dozen of its singular, net-work leaves, and two large ones dried, to show the size when full grown. *Cypripedium. Lowii* was very attractive. Besides the above, Messrs. Veitch had a number of ornamental-foliaged plants, *Ferns* and *Lycopods*.

The *Orchids* at this exhibition were the best collections of plants in the gardens, many of them indeed were very fine. In the Amateur Class, the first prize was awarded to Mr. Rucker, for fifteen plants, and included the handsome *Lælia purpurata*, *Cattleya lobata*, *Dendrobium Farmeri*, *Cælogyne pandurata*, and *Barkeria spectabilis*; the remainder were not so choice, but very well grown. The second prize in this class was awarded to Mr. Gedney, gardener to Mrs. Ellis, of Hoddesdon; he also showed *Lælia purpurata*, and others mentioned above, including a beautiful specimen of *Cattleya lobata*. Mr. Keele, gardener to Dr. Butler, of Woolwich, was third, and had, among other finely-grown specimens, the following:—*Cattleya ianthina*, *Lælia purpurata*, *Vanda teres*, *Brassia verrucosa major*, and *Anguloa Clowesii*. Smaller collections were also very excellent in growth and in the species shown. Among the Nurserymen's Classes for these plants, Messrs. Jackson, of Kingston, took the lead with fifteen, including *Lælia purpurata*, *Cattleya Massiæ* and *superba*, *Aerides Fieldingii*, *Anguloa Clowesii*, etc.

There were some very choice and well-grown collections of stove and greenhouse plants. Mr. Dods was first with twenty plants, either in or out of bloom, followed by Messrs. Cutbush, of Barnet, and Messrs. Jackson, who were third.

The *Pelargoniums* and *Roses* were fine indeed. In the former, show varieties, Mr. Turner was first, and in his collection were Rose Celestial, Agnes, Don Carlos, Sanspareil, Governor-General, and Saracen. Mr. Dobson, of Isleworth, followed with Governor-General, Gem of the West, Rose-leaf, Eclipse, Emperor, and Evelyne. Messrs. Fraser, of Lea Bridge, took the third prize with Lord Raglan, Saracen, Lucy, Carlos, Optimum, and Topsy.

In the Amateur's Class, Mr. Nye, gardener to E. Foster, Esq., was first, Mr. Higgins second, and Mr. Holden third. In the Fancy Class (nurserymen), Mr. Turner came first, followed by Messrs. Fraser, and Mr. Gaines. Mr. Hodson, of Hampstead, was first in amateur competition. All the plants were very well grown and beautifully flowered. Among the best of the new fancies was *Formosa*, the upper petals rosy purple, lower veined lilac, centre clear white, and form very good. Of the French, or spotted Pelargoniums, the best, although not all the newest, were Pescatore, Nanette, Etoile du Nord, Osiris (Odier), Madame Lemichez, Argus, Eugenie

Duval, Quadroon, Bellona, and La Ristori. Of seedling Pelargoniums the best were *Spotted Beauty* (Hoyle), upper petals with a small dark spot, lower flesh colour with pink spots, centre pure white, very free; *Sir Colin Campbell* (Hoyle), upper petals very deep colour, lower deep crimson, veined, centre white, free, and a distinct flower; *Lady Canning* (Hoyle), rosy flesh colour, with a small spot in the upper petals, a large flower; *Roi des Fantaisies* (Turner), rosy purple with a white stripe, a rather loose and thin petal; *Larkfield Rival* (Turner), a new bedding variety, pure white with a small lilac spot in the upper petals, very free, and will prove a desirable bedder; *Lightning* (Foster), upper petals deep maroon, lower ones light scarlet, smooth and fine; *Glow-worm* (Foster), light scarlet red, with a maroon spot in the upper petals, smooth and good; *Unique* (Foster), upper petals maroon, lower rosy red, large and good.

In *Roses*, Messrs. Lane were first, Messrs. Paul and Fraser following, and Mr. Francis third. Their plants were arranged in circular clumps, with dwarf plants on the outside to conceal the pots; a white hybrid China, named *Madeline*, and *Duke of Cambridge*, a damask, were the greatest novelties. Messrs. Ivery obtained the first prize for eight. The best Roses shown were *Bougerie, T.; Niphetos, T.; Gloire de Dijon, T.; Souvenir de la Malmaison, B.; Lord Raglan, H. P.; William Griffith, H. P.; Blairii, No. 2, H. C.; Queen, H. B.; Chenedole, H. B.; Elise Mercæur, H. B.; Madame Willermoz, T., very fine; Madame Cambaceres, H. P.; Souvenir d'un Ami, T.; Coupe d'Hebe, H.P.*

In *Azaleas*, Mr. Carson was first in collections of eight varieties, and Mr. Green first in six plants. Messrs. Ivery obtained a first-class certificate for their new seedling named *Gem*.

Mr. Salter forwarded a very interesting collection of hardy variegated plants, containing many good things that are not often seen. Mr. Salter certainly takes the lead in hardy plants of this beautiful class, now become so fashionable. We observed a variegated *Artemisia vulgaris*, a *Tussilago*, *Dactylis*, *Funkia albo-marginata*, and *F. undulata*, *Melissa grandiflora*, *M. officinalis*, *Hemerocallis fulva*, and many others.

Among new and select plants we noticed a specimen of *Clianthus Dampieri*, of which we give a correct figure the present month; *Olea illicifolia*, a fine, new, and perfectly hardy evergreen Olive, from Japan; the leaves are somewhat like those of the Holly, but more neatly toothed, and of a more lively green; it will be a handsome thing for the shrubbery; the new orange-scarlet *Salpiglossis sp.*, from Chili, a large, showy flower with a yellow centre; *Begonia splendens argentea*, its leaves a metallic, silvery pink with dark veins, very distinct and fine; *Hydrangea Japonica, foliis variegatis*, a variety of this named *aurea superba*, with foliage striped and edged with pale yellow. Mr. Standish sent *Spiræa Reevesiana, flore-pleno*, in full flower, the blossoms as large and full as a Chamomile; also *Berberis Japonica*, and *Bealii*, in fruit, very fine leaf and berry;

Rhododendron, Standish's *Perfection*, lilac-blush, the upper segments with greenish-brown spots, a fine, substantial flower; a *Verbena*, called *Striata perfecta*, from Mr. Smith, of Hornsey, lilac with a white edge, good; a *Clematis*, a seedling from *Florida*, named *atro-violacea*, having deep purple, wavy flowers. *Rhododendron Maddeni* was sent by Messrs. Henderson, of Pine Apple Place, and *Mirbelia floribunda* by Messrs. Cutbush. Mr. Glendinning exhibited a fine clump of Fortune's new *Larch* from China, which was edged with specimens of the handsome-leaved *Farfugium grande*.

The collection of fruit was good, and rather above the usual quantity, Mr. Flemming, gardener to the Duke of Sutherland, at Trentham, as usual, being a large and successful contributor.

The day before the show there was a trial of Mowing Machines, the results of which we shall avail ourselves of an early opportunity to particularize, as well as to describe and illustrate the many improvements effected in various articles connected with the art of gardening, specimens of which were deposited in the grounds during the period of the exhibition.

CRYSTAL PALACE, *June 16th and 17th*.—The second exhibition at the Crystal Palace this season took place on the above-named days, and was as usual well attended. The plants were very good on the whole, and we liked the arrangements better than on any former occasion. The exhibition having taken place so near to that of the Horticultural Society, a week only intervening, the major part of the subjects were the same as shown at Chiswick. Our notice will therefore be rather brief, not in consequence of any inferiority in the specimens and subjects of exhibition, which were indeed equal, and in many instances superior, to those at the former show, but to avoid needless repetition.

For Stove and Greenhouse plants, in collections, the first prize was obtained by Mr. Dods, Sir J. Cathcart's gardener; and the second was awarded to Mr. Whitbread, gardener to H. Collyer, Esq., of Dartford. The plants in each collection were fine, and quite specimens of growth, as well as excellent selections. The *Azaleas* were good, though a few of them were getting past their best. The plants from Messrs. Green, Carson, and Ivery were well-grown and flowered, and in the best condition. The weather having proved extremely hot on the first day (the thermometer reaching 95° in the shade, and 111° in the sun), the cut flowers, especially *Roses*, experienced the ill effects of it, and had suffered greatly. We noticed blooms of the *Yellow Provins*, a fine Rose as regards colour, but not often shown, in consequence of the difficulty in blooming it well. *Ferns* were not so numerous as at some of the exhibitions, but were good. *Orchids* were in the best possible condition, and in strong force. *Pitcher Plants* were shown by Messrs. Veitch and Son, of Exeter and Chelsea Nurseries, and included all the best of this highly interesting tribe. There were some very showy groups of tall

Cacti from Mr. Green, Mr. Bunn, and one or two more exhibitors. *Epiphyllum speciosum coccineum*, shown by the first-named exhibitor, had numerous small brilliant crimson blossoms, and *E. speciosum grandiflorum*, brilliant pink flowers. *Begonias*, from Messrs. Veitch, and others, included some of the newest and most handsome, especially *B. regina, argentea*, and *rex*. Collections of plants with ornamental foliage were extensive, and, as usual, formed great centres of attraction. Of new and select plants the following were more especially worthy of notice at this show:—*Mahernia vestita*, exhibited by Mr. Green, and almost covered with its pretty yellow bell-shaped blossoms; *Tradescantia odoratissima*, from Messrs. Veitch and Sons, with a large spike of fine deep-purple flowers; the *Holly-leaved Olive*, alluded to previously, with beautiful foliage; a new *Dracæna*, with orange-striped leaves; *Lilium bulbiferum, var.*, from Messrs. Jackson, of the Kingston Nursery, with dark-coloured flowers; also, a nice specimen of *Rhododendron Maddeni*, *Bilbergia vittata*, with panicles of green blossoms and large pink bracts, rendering it very conspicuous; an *Azalea*, with white flowers, from California, *Philesia buxifolia*, sent by Messrs. Veitch and Sons, was a nice plant, but with not so much bloom on it as we have before seen—it will not fail to be admired by every one who grows it, for its handsome light-crimson blossoms, and deep-green, bushy foliage.

The fruit was tolerable, and perhaps rather less in quantity than usual.

The grounds of the Palace were well kept, the shrubs and bedding plants looking well. On the first day, the magnificent fountains were played off to the delight and astonishment of a large assembly.

REVIEW.

The Natural History of British Meadow and Pasture Grasses. By JAMES BUCKMAN, F.L.S., F.G.S., F.S.A., etc. London: Hamilton, Adams, and Co. Price 3*s*.

PROFESSOR BUCKMAN'S little work is calculated to be very useful in directing a larger share of attention to the subject of meadow grasses. The notes therein contained are mostly the result of direct observation and attention to individual species, both in their wild state and in cultivation. The work is divided into three chapters, the first comprising a natural history of British grasses; the second, their structure and economy; and the third, the results of various experiments of a highly interesting nature.

As regards descriptions of species, it must be confessed that, after all, these can seldom be rendered quite intelligible without specimens or drawings; but as this little volume is meant principally as an indicator of the value of a study of our grasses, it is hoped that students may be induced to collect specimens for themselves, from which, when in a fresh state, such drawings may be made as may assist in this interesting study. The work is neatly got up, and illustrated by two uncoloured plates.

The following remarks, under the head of "*Diseases of Grasses*," p. 18, are worthy of being quoted:—

> "The smut (*Uredo segetum*) is constantly found attacking the grass-flowers, but oftener, perhaps, on the flowers of *Arrhenatherum avenaceum* than on any other species. I have seen whole patches of this grass covered with the black efflorescence of the fungus; here, however, as the object is not grain, it produces but little mischief, though the attacked grass is always stunted in its growth. The greatest mischief done by fungi to grasses is that occasioned by the agaric, or mushroom tribe; and more especially by those which form the circles in meadows, known as fairy-rings. These often make a turf look very unsightly; and though it has been said that they manure the grass, as evidenced from the circle of greener grass where they have decayed, yet we must remember that this ring of green is always surrounded by another of brown withered herbage, consisting of nearly dead grasses; and, indeed, it is the decay of these that the phosphatic salts, which Professor Way has shown to exist so abundantly in this tribe of fungi, are supplied.
>
> "It may be here stated, that the fungus upon which the Professor experimented, and upon which his paper was founded, is the *Agaricus prunulus*, a plant which is abundant in all poor, upland pastures in Gloucestershire, and consequently the fairy-rings which are formed by them are at all seasons of the year a good criterion of the value of a field. This fungus is remarkable for growing in the month of May, on which account it can be distinguished from its congeners, as other fairy-ring agarics do not appear until the autumn, and then frequently in the same rings as those of the *A. prunulus*. This plant is worthy of notice, as furnishing a delicious article of food; I think far superior to our mushroom: indeed this is the French "*mousseron*," from which our name has been derived, and attached to the *Agaricus campestris*; and, according to Dr. Badham, it is the favourite species all over the continent; and to show the esteem in which it is held in Italy, the learned Doctor says, that little baskets of it are sent as presents to lawyers, and fees to medical men. The physiology of the growth of fungi in the grasses on which they feed is a curious question, and one which it would take too long to discuss here; suffice it to explain that it is easily prevented, as whatever tends to improve the pasture soon destroys the rings; thus on a field in front of the Royal Agricultural College, where, in about eight acres, were as many as seventy rings, was applied, some years since, a dressing of bones and guano, and the fungus crop was, for a time, nearly destroyed. Fairy-ring agarics are great pests in lawns, arising from the grass being impoverished by constant cutting: these and mosses are soon kept under by a fine-toothed rake, and using guano highly diluted with sand or fine ashes, or watering with guano water. This treatment will make the grass coarser for a time; but, in many cases, it is a question of treatment of this description, or the destruction of the turf altogether."

NOTES ON NEW AND SELECT PLANTS.

DENDROBIUM CHRYSOTOXUM. Nat. Ord. *Orchideæ*.— One of the very attractive plants belonging to the *Dendrocoryne* section of *Dendrobes* (characterized by a lip destitute of any tuft). Its blossoms are borne on racemes of twelve or more in number, of a rich golden yellow, and measure about two inches across; the leaves are rather broad and short, and the pseudo-bulbs long. It was imported from the East Indies by Messrs. Henderson, and blossoms in March. (*Bot. Mag.* 5053.)

51. RHODODENDRON ARGENTEUM. Nat. Ord. *Ericeæ.*—This noble shrub flowered at Kew, for the first time in this country (so far as we are aware), in the month of March last, in the cool greenhouse appropriated to the collection of Sikkim Rhododendrons. When the flowers are in bud they are pink, gradually whitening as they expand, and at the base of their tube is a rich, deep crimson-purple spot. The specific name, *Argenteum*, refers to the foliage, which alone constitutes it a remarkable plant even when in a flowerless state, the leaves being often a foot in length, broad in proportion, and *silvery* on the under side. When the new leaf-buds are forming, in spring, their appearance has been not inappropriately described by Dr. Hooker as resembling pine cones, being covered with large, brown, imbricated scales. The heads of bloom are large and well filled, the individual flowers measuring upwards of two inches across the mouth, and, according to age, vary from pink to pale sulphur-white. The flowering plants at Kew are near five feet high at present; in Sikkim-Himalaya, however, their native country, they attain the dimensons of trees 30 feet in height; elevated at from 8,000 to 10,000 feet above the sea level, on the summits of Sinchul, Tonglo, and other mountain peaks, they form an interesting, and indeed striking feature in the landscape, as all who are familiar with the descriptions given by Dr. Hooker in his "Himalayan Journals" will readily believe. (*Bot. Mag.* 5054.)

52. XIPHIDIUM FLORIBUNDUM. Nat. Ord. *Wachendorfiaceæ.*—A curious, Asphodel-looking little-known plant, from tropical America, bearing numerous small greenish-white flowers, in long spikes; in habit and foliage it resembles in some degree an Iris. (*Bot. Mag.* 5055.)

53. OBERONIA ACAULIS. Nat. Ord. *Orchideæ.*—An orchid from Khasya, in Eastern Bengal, belonging to an extensive but not very showy genus. The raceme of flowers (which are very small, orange-yellow, and closely set) is long, cylindrical, and curved; the leaves are few, some of them about a foot long and stemless, gradually tapering. This plant flowered at Kew for the first time in February last, and owes its introduction to Mr. Simons. (*Bot. Mag.* 5056.)

54. POLYGALA HILAIRIANA. Nat. Ord. *Polygalaceæ.*—This is probably the largest-flowered species of the genus, some of the blossoms being quite an inch long, but possessing little beauty, greenish-white, with a tinge of pink; the leaves are about five inches long, oblong ovate, and glabrous, as is also every portion of the plant. It blossoms in the stove during spring, and is a native of Bahia. (*Bot. Mag.* 5057.)

55. PLATANTHERA INCISA. Nat. Ord. *Orchidaceæ.*—A pretty, hardy, herbaceous orchid from North America, with a cylindrical

spike of handsome purple flowers, after the manner of an orchis, which in general appearance it resembles.

56. EREMOSTACHYS LACINIATA. Nat. Ord. *Labiatæ.*—A fine, showy, hardy perennial, from the eastern side of the Caucasus. The flowering stem grows five feet high, bearing whorls of yellow, salvia-like flowers, seated in woolly, white calyxes, supported by broad green bracts. It has large, spindle-shaped roots, and is rather difficult to cultivate, on account of their being liable to suffer from wet in winter. The best plan to preserve it is to take it up at the end of autumn, and keep it in a large pot in a cold frame through the winter, giving very little water. It likes a rich sandy loam, and flowers from April to June.

57. DIANTHUS CRUENTUS. Nat. Ord. *Caryophylleæ.*—A very pretty, hardy, herbaceous plant, with deep rosy-pink flowers. It was received from St. Petersburg by M. Van Houtte some few years back, and is supposed to come from the Caucasus or Siberia. Although less brilliant than some of the Sweet Williams (*D. barbatus*), it is quite as ornamental. The leaves form tufts of light green, from which rise simple stems, terminated by a nearly globular flower-head, comprising numerous vivid carmine blossoms, the petals being much toothed; the calyx is purple, and under the head of flowers are several long, pointed bracts. (*Flor. des Serr.* 488.)

58. CONSOLIDA ACONITI. Nat. Ord. *Ranunculaceæ.*—A curious annual plant, from the vicinity of Erzeroum, whence seed has been forwarded to the Horticultural Society by H. Calvert, Esq. It possesses few claims to culture, the flowers being small and the growth weak and straggling. The former compose a loose raceme, on foot-stalks about two inches long; they are bluish-lavender coloured. The leaves are divided into three to five narrow lobes, and the entire plant grows about a foot and a-half high. Forskahl regarded it as an *Aconitum*, and Linnæus as a *Delphinium;* and, although in some points allied to each, it really belongs to neither of those genera, which fact has induced Dr. Lindley to re-establish the old genus *Consolida*, which includes the present species. (*Hort. Soc. Journ.*)

NEW AND SELECT GARDEN HYBRIDS.

GLOXINIAS. Of the old class, with drooping flowers, we have seen a few new hybrids raised by Mr. S. Breeze, Denton, near Harleston, that are well deserving of notice, amongst them are the following:—*Mount Parnassus* is distinct, and certainly novel, being large and of a pale lilac-blue, with narrow streaks and light centre; the form and substance are also good, and the leaves prettily veined with white, so that when out of bloom it is handsome as a plant with ornamental foliage. *Raphael*, a pure white, with a violet or plum coloured spot on the lower lobes, and small dark spots in the throat; the foliage is also marked with white veins. *Minnie* is a fine large flower, having a white tube and upper lobes, the throat and lower ones being deep plum colour, the latter with a white margin. *Murillo*, a light porcelain-white, with shaded blue centre, spotted, and with a white streak on the lower lobe. *Perugino*, pale porcelain-white, with a deep violet-crimson centre, and blue front lobes, margined with pale porcelain; very striking.

10. Achimenes.—Mr. Daniel White, of Belmont, Northwick, Cheshire, has raised a fine variety with conspicuous flowers, in the style and growth of *A. longiflora major*, named *Belmonti*. The blossoms are near three inches across, of a deep rich violet, evenly but obscurely fringed at the margin; the centre is picturesquely marked with a yellow blotch on a creamy white ground, which is scattered over with small rich carmine streaks and spots. *Dentonia* is another distinct kind, with clear rosy-lilac coloured flowers, about two inches in diameter, with white throat, and violet-purple lines radiating from the centre of each lobe. It looks well in contrast with other kinds of higher colours.

11. Geraniums (*Variegated-leaved*).—*Hendersoni* much resembles *Flower of the Day* in leaf and habit; the trusses of flower are larger, however, of a brilliant orange-scarlet, and possessing fine form as well as substance. It is a beautiful bedder, and in large masses is very effective. The *Bouquet* is a most distinct hybrid, the leaves richly variegated with a broad sulphur-yellow margin, and producing fine large trusses of scarlet flowers of good form and substance, each head of bloom accompanied with a complete bouquet-like circle of green leaves. Messrs. Henderson, of Wellington, are sending them out.

12. Verbenas.—The following, raised by Mr. S. Breeze, are of great excellence, both as regards flower and habit:—*Domvilliana*, fine purple-blue, with a magnificent, clear white eye; a very effective flower. *Beauty of Castille*, deep violet-rose, fine white eye, a beautiful truss, and good habit. *Cynthia*, rich crimson, a very large flower and pip, clear white eye. *Ladybird*, a rosy-lavender colour, rather distinct in this respect, fine form, and extra large flower and truss. *Kitty Tyrrel*, lilac-rose, with yellow eye, around which is a border of light crimson; a large trusser, and free habit. *Norfolk Rival*, amaranth rose, with a very distinct, large, white eye, truss very fine, and habit free; a very effective bloom. Mr. Stephen Amey, of Braintree, has also sent out two new ones of great merit, namely, *Miss Hanmer*, a pure white, with a rosy-crimson band round the eye, a fine trusser; and *Mrs. Ebrington*, a clear white ground, with a distinct cherry-coloured centre; first-rate habit and form.

13. Fuchsias.—The following are a few excellent novelties among Mr. Banks's new seedlings:—*Guiding Star*, sepals white, well recurved, with blush tube, of medium length, corolla violet-purple; habit free and branching. *Prince Frederick William*, tube of medium size, bright carmine-red, sepals broad, equally coloured, and

well recurved; corolla very often bell-shaped, blue, changing to deep plum.

14. DOUBLE PETUNIAS.—We have seen a few remarkable flowers of this class, raised by Mr. Grieves, of Culford Hall, and selected from upwards of one hundred seedlings. They are all full flowers, well filled up even to the centre, of good form and substance. *Antigone*, a large white; *General Havelock*, double crimson, with a broad outer guard petal; *Hesperus*, lilac-rose, a very distinct colour; *Maid of Kildare*, a very compact white, but smaller than the first-named; *Red Cross Banner*, crimson-purple, of medium size but excellent form.

15. PELARGONIUM.—*The Bride.* This flower, to be sent out by Messrs. Dobson and Son, has obtained several first prizes, as being superior and distinct in every respect to all existing white varieties. The flowers are of average size, pure white, with a large rosy-crimson spot on the upper petals; the form and substance are excellent; it is also of strong, short-jointed habit, and a very free-blooming variety.

QUESTIONS, ANSWERS, AND REMARKS.

EARWIGS.—I shall feel obliged by your informing me and some of my friends who are subscribers to the *Cabinet*, the most ready and effective mode of destroying *Earwigs*, which in my garden are very numerous, and have consumed wholly some of my vegetable seed crops, such as red beet, etc.; they are very destructive also in the flower-garden. On removing the earth a few inches deep, we find numbers of these insects.—*A Subscriber from the first.*—[We are sorry that it is not in our power to recommend any more effectual plan than capturing the insects alive and then destroying them. Many plans and devices have been hit upon for taking them, and some quite useless for the purpose intended, such as surrounding plants with water, but as the earwig (*Forficula auricularis*) is furnished with a very delicate pair of wings, this is no remedy at all. These wings are folded up in so small and compact a space that they are not to be detected at first sight. Various traps, as short bundles of hollow reeds, small garden-pots containing a little moss, or the tin earwig-traps, will be found serviceable, though we prefer the garden-pot inverted on short stakes; these if looked over every morning will soon diminish their numbers, though the insect is very prolific. It feeds during the night, and to avoid the heat of the sun, will creep into these receptacles shortly after daybreak, when they are easily shaken out into a can of water, and then killed. The earwig differs in its habits from other insects with respect to its young, as it sits on its eggs, and broods over the young ones like a hen over her chickens; most other insects die after they have laid their eggs, which they leave to be hatched by the sun, and the future progeny to take care of themselves. This reply answers another correspondent.—ED.]

GAS HEATING.—Do you know any one who has tried "*Thomson's Gas-heating Apparatus*," so strongly recommended and advertised by the inventor for greenhouses? I have had one, and after spending nearly twenty pounds, money already paid (much more than hot-water pipes would have cost), besides destroying nearly all my plants, find it quite useless; and shall be compelled to have it taken down, and incur, *de novo*, the inconvenience and expense of some other mode of heating, unless you can oblige me with the name of any one who has succeeded with it, and can offer a suggestion how to fix mine with the chance of success, and at a trifling additional cost. My endeavours to make the apparatus answer have been most patient, and I have not spared the slightest expense in trying to *perfect the patent*. Very kind you will say! When I bought the apparatus, I was led to expect that its expense would be very trifling, and its success certain. That it should have resulted in so great expense, and destruction of my plants, you can well imagine to be one of the greatest annoyances to one so fond of flowers as I am, and preparing them, as I intended, for show. If you can assist me in this matter I shall esteem it a favour.—*Wm. Worth, a subscriber to your Journal.*—[We are unable to assist our respected correspondent, not having seen the apparatus complained of. Perhaps some of our readers may be able to favour us with their experience. It is of the greatest importance that proper provision should be made for ventilation, or carrying off the products of combustion from the house, or the plants will certainly suffer.—Ed.]

Moss-houses.—*A New Subscriber* would be glad to be informed what varieties of mosses are used in covering these erections, and any particulars concerning their construction.—[There are many varieties of moss and lichens which may be used for lining moss-houses; of the terrestrial kinds those most frequently used are known by the names of *Bryum hornum*, a yellowish green, *Dicranum glaucum*, whitish green, *Sphagnum acutifolium*, pinky white, and *S. obtusifolium*, yellowish. There are tree mosses, or lichens, that look well; for instance, *Cenomyce rangiferina*, the "Reindeer moss," white, found on ash and other trees, it also grows in quantity on poor, gravelly soils among heath. You cannot do better than to follow your own fancy in the matter, making use of such local mosses as you may be able to obtain in quantity. We have seen some very neat designs executed with two or three sorts; the great art consists in arranging the moss so as to form a pretty pattern, with the colours well contrasted. The framework of the house looks best if made of rough larch poles, with the bark on, and a cornice may be carried round the ceiling, composed of fir-cones, well glued on. The roof may be thatched with straw or common ling, the latter looks more rustic perhaps, and may be neatly done, and will last for a great length of time.—Ed.]

Taking up the Roots of Ranunculus and Anemones.—Of all the points in the cultivation of the Ranunculus, this is the most vital and important. The tubers are extremely apt to start, or put forth roots again, if allowed to remain too long in the ground—this fatal event being most liable to occur under the influence of heat and moisture. Hence, if the weather be showery, the top awning should never be removed till the stalks and foliage of the plants have turned yellow, indicating the proper period for taking up the roots; when they have put on this appearance they should be at once harvested. If the tuber has again vegetated, it will either grow weakly, or, in all probability, perish when planted the following year. But though the young roots may not always be visible to casual observation, if but an impetus be given—an effort, as it were, to grow be induced—there will be a failure in the bloom the following summer; the root being weakened and injured by its previous attempt at growth.—B. B.

Epimediums.—At a late meeting of the Horticultural Society, James Bateman, Esq., of Biddulph Grange, sent a very interesting collection of *Epimediums*, which were accompanied by the following remarks:—"I send you a detachment of *Epimediums*, which, however, from untoward circumstances, very imperfectly represent the beauty of the group. The cold and heavy wet of the last few days have battered such as were already in flower, and have prevented the opening of others that I had expected would have been ready to accompany them, and of course before another meeting-day comes their flowers will have altogether passed away. As the merits of the group are very imperfectly known—indeed, I am not aware of ever having seen more than two or three species (and these generally out of health) in any one collection—I think it desirable that the attention of amateurs should be drawn to the subject, and with this view, I now forward specimens for exhibition. The collection comprises the following distinct kinds:—*Epimedium alpinum*; this, perhaps the least interesting species in the group, was the only one known in our gardens some twenty or twenty-five years ago. *E. rubrum*; this is allied to the former, but is perfectly distinct, and, I think, the most beautiful individual in the genus; unfortunately my specimens have only as yet one expanded flower. *E. pinnatum*; of this there are many varieties known, under the names of *E. colchicum*, *E. pinnatum elegans*, etc.; the flowers are a brilliant yellow. *E. atroviolaceum*; *E. violacea-carnea*: these though similar in colour are no doubt specifically distinct; they produce a profusion of violet and lilac flowers of surpassing elegance. *E. diphyllum*, the smallest of the genus, has minute, pure white flowers. *E. erectum* grows in a dense, compact mass, and when planted at an elevation that admits of its globular racemes of cream-coloured flowers being seen, is a striking plant. *E. versicolor*, a pretty, rather dwarf species, with brown and yellow flowers. *E. macracanthum* (*E. grandiflorum* of some catalogues) has large, whitish flowers, but they are not very freely produced. *E. Musschianum*, a much smaller plant than the last, the colour and form of the flowers are somewhat similar, but the habit is more graceful, and it is a profuse bloomer. There is much confusion in the nomenclature of the genus, and I could not produce any authority other than that of the catalogues of continental nurserymen for several of the names in the foregoing list; all that I can answer for is, that I have sent you ten *Epimediums* that are specifically distinct. I have others, not at present in flower; and I have not the least doubt that were Siberia and the Caucasus carefully explored, our list might at least be doubled. Among the species there are, as you will perceive, to be seen flowers of every colour; nor is this their only attraction, for the foliage is singularly elegant, and the new leaves that appear from time to time themselves present every variety of tint, from a pale green to a brilliant red. To produce their full effect the species should be allowed to form large masses, and be grown in a separate compartment of the garden, where in their proper season, they are highly interesting and attractive. None of the species like the full blaze of the sun, and (with the exception of *E. pinnatum* and *E. grandiflorum*) they thrive best where his rays are altogether excluded; not by overhanging trees, but by a north wall, or (as in my own garden) by lofty piles of stump. Among the latter they succeed perfectly, if planted in plenty of rich vegetable mould."

BAMBUSA METAKE.—At the same meeting, Mr. Bateman also sent specimens of an interesting and very ornamental Bamboo, named *Bambusa metake*, which will make a fine companion to the *Pampas grass*. Mr. Bateman says it is perfectly hardy, evergreen, and grows very vigorously when planted by a running stream. With him it is already (May) eight feet high, but is expected to attain a much greater stature. This plant will prove an interesting feature in the aspect of our garden scenery; tall, ornamental grasses, and their allies, were till recently a *desideratum*.

TWELVE NEW AND SELECT CARNATIONS.—The annexed descriptive notes may be relied on. First, bizarres—Lord Raglan (Puxley's), a scarlet bizarre, of excellent form and arrangement, size only medium; Grand Monarch (Puxley's), scarlet bizarre, form excellent, and of full size; Shakespeare (Puxley's), pink bizarre, outline very good and of large size; Premier (Puxley's), a crimson bizarre, first-rate qualities. Flakes—Royal scarlet (Puxley's), a fine, large, full flower; Mr. Tugwell (Puxley's), scarlet, a fine flower in every respect, well marked, and very smooth; John Bayley (Dodwell's), in my opinion one of the very best scarlet flakes yet sent out, the ground is pure white, the striping very regular, and edge smooth, outline first-rate, and a very constant flower; Coronation (Puxley's), a large scarlet flake, full, and tolerably good form, but open to improvement; Favourite (Addis), a fine purple flake, ground very pure generally a well formed, good, substantial flower; Royal Purple (Puxley's), a large flower, no quite full enough at times, and therefore somewhat uncertain; Esther (Dodwell's), a first-rate purple flake, ground very pure, size and outline extremely good, smooth and very constant; Nancy (Turner's), a rose flake, of large size and good outline.—*An Old Carnation Grower, Woolwich.*

CULTURE OF PROTEACEÆ.—Before the introduction and high state of cultivation of the splendid flowering plants now annually exhibited in the vicinity of London, it was customary to estimate the value of public and private collections by the number and rarity of the species, without regard to the circumstance of their producing fine flowers. Perhaps no plants were in higher repute than those of the family to which this belongs, as is amply shown by the early volumes of the "*Botanical Magazine*," and other periodicals. Within the last twenty or thirty years, however, the cultivation of *Proteaceæ* has declined; the species have gradually disappeared from most of the private collections around London, and but few nurserymen now take interest in them. This change may be partly owing to the supposed difficulty of preserving them, for under certain circumstances the plants suddenly die, even when in vigorous health. In the Royal Gardens *Proteaceæ* have maintained their place, more especially those that are natives of Australia; and as there are some at this time between forty and fifty years of age, or more, and others of a large size half that age, it may be inferred that *Proteaceæ* are not so short-lived in a state of cultivation as they are generally supposed to be. Within my recollection it was the common practice to grow them in some kind of light soil, usually peat. The hygrometric condition of such soil is easily affected by changes of the surrounding atmosphere, becoming quickly dry in hot weather, and apt to become sodden with moisture in winter, and the spongioles or rootlets of *Proteaceæ* are very sensitive to either extreme; the use of light soil therefore, in my opinion, accounts for the frequent sudden death of plants of this kind. We use good yellow loam, to which, for small plants, we add a little sharp sand. In shifting or repotting a plant, we make it a rule to keep the ball of roots a little elevated above the surface of the new mould, to prevent any superabundance of water from lodging round the base of the stem. In the winter, care must be taken to give the soil no more water than is required to keep it moderately moist; but in summer, water may be given freely in the evening or early in the morning. It is important that the plants be so placed that the rays of the sun do not strike the sides of the pot.—*J. Smith, Kew.*

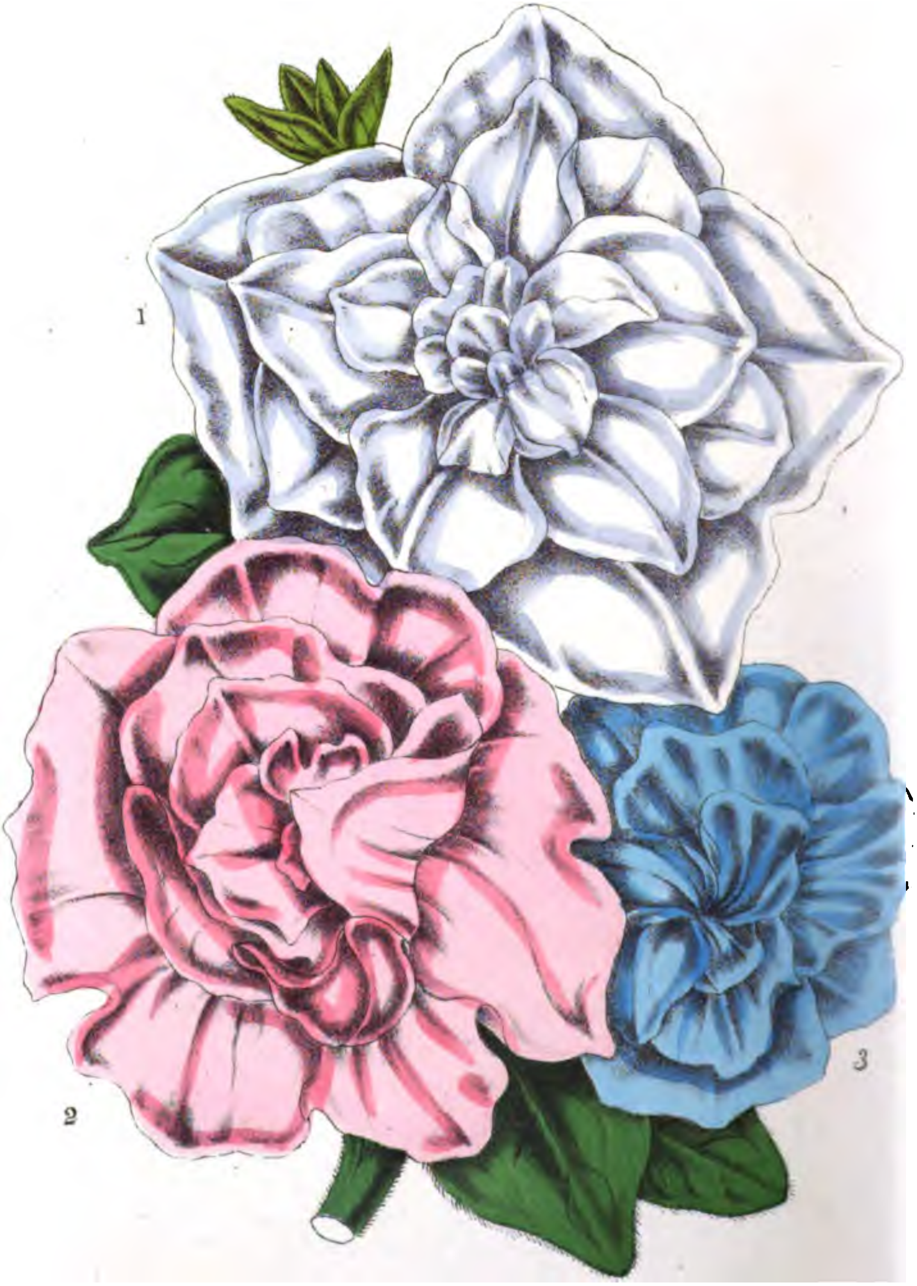
MENZIESIA EMPETRIFORMIS.—This is one of the most beautiful little American plants in cultivation, and but rarely met with, chiefly, no doubt, through the difficulty in propagating it—cuttings do not strike well, and layers are two years before they will root. It grows well in peat, and a small bed of it looks very neat and pretty, and as it grows only six inches high, it does well for rockwork. If it could be obtained in sufficient quantity it would form a charming edge for a border. It blooms in June, and the pretty bell-shaped, rose-coloured flowers, combined with its neat, heath-like foliage, make it admired by every one.—*T. K. S.*

FORTUNE'S YELLOW ROSE.—As this is considered by many to be a shy bloomer, I beg to say that there now in my nursery at Bagshot, two standards, with heads measuring respectively 5 feet and 7 feet in diameter literally, covered with flowers. Failure in blooming this Rose arises from pruning. It should never be pruned at all.—*John Standish.*

PROPAGATING HEATHS.—Fill the pots half full of broken crocks, add a handful of good rich open peat soil, and about one inch of pure sand, with a small portion of charcoal dust. When the young shoots have got past their tender state and become partly hardened, as it is termed, or half-ripened, then is the best period to ensure success. Take the most healthy, cut them clean with a sharp knife, clear off with small scissors a portion of the leaves, as far as the cutting is to be inserted, which should be one-third of its length; water the sand, and when drained put them in as firm as can be done so as not to bruise them; water afterwards, and when dried a little, put on closely a bell-glass, placing the pots in a propagating-house, etc. Take off the glass every morning, wipe it with a dry cloth, and leave it off for half an hour, or so, taking care to water the cuttings often, having a fine-rosed watering pot. I have seen thousands of cuttings put in, and lost for want of sufficient water. By the above plan nearly all will strike.—*T. K. S.*

OBITUARY NOTICE.—It is our melancholy duty to record the death of Dr. Robert Brown, D.C.L., F.R.S., the eminent botanist, so well known for his labours in Australia, as naturalist of the unfortunate expedition of Captain Flinders, in 1802, and afterwards as keeper of the Banksian Herbarium, in the British Museum. The lamented gentleman was born December 21, 1773, at Montrose, and at his death was in the eighty-fifth year of his age.

KEW.—There is no doubt that Government is preparing in earnest for submitting to the next session of Parliament an estimate for the much wanted conservatory at Kew. Plans are already in preparation, and it is reported that no less a personage than Sir Charles Barry has been consulted upon the subject. When our great National Garden shall have been provided with as suitable a shelter for the half-hardy plants of temperate climates as it has been already for those of the tropics, Kew will indeed become a garden worthy of bearing the name of ROYAL.—*Gard. Chron.*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The Floricultural Cabinet.

AUGUST, 1858.

ILLUSTRATION.

PETUNIAS, DOUBLE HYBRID VARIETIES.

No. I.—Iphigenia.
II.—Bella.
III.—Azora.

DOUBLE PETUNIAS present another instance wherein the skill of the florist, rightly directed, in cultivation and by crossing varieties, has effected a wonderful change in the appearance of a flower. There are many gardeners who can call to mind the introduction of the old white species, *P. nyctaginiflora*, in 1823, and who may well remember also the great demand for it, and the vast numbers of plants that were disposed of by the growers, more especially when its capabilities as a plant for the bed or border were fully known. A few years later, the purple-flowered *violacea* was raised from seed sent from Brazil, of which it was said " there is perhaps no plant yet in our gardens that is quite so handsome as this; even the *Verbena*, superior as it is in colour, must yield to it in point of general beauty." How little was then imagined of the size, form, fulness, and richly varied colouring to which subsequent varieties would attain! The wildest fancy would scarcely have ventured to anticipate flowers six inches, and even upwards, in diameter, and others so double and so infinitely coloured and marked as we now have them.

The three *Petunias* figured by us were raised by M. Sieckmann, jun., florist, of Weimar—a gentleman who has been very successful in raising a large number of beautiful kinds. In our own country also, Mr. Grieves, of Culford Hall, has devoted much attention to the same object, and with what success there are few of our readers who are not acquainted. The double varieties partake of two characters, one in which the flowers are furnished with large guard petals, as in some of the Hollyhocks, and the other in which these are wanting. As regards form and substance of petal, much remains to be done, all will allow; but we do not despair of seeing marked improvement in these respects, towards which result each succeeding season will doubtless contribute something good.

The following are a few of the best *double varieties* :—

- *Antigone*, pure white, very large and full.
- *Azora*, bluish-lilac, full, but rather small.
- *Bella*, rose, large and very fragrant.
- *Duchesse de Brabant*, pure white, fine form.
- *Etoile des Jardins*, light rosy carmine, full.
- *General Havelock*, bright carmine, with fine large guard petals.
- *Iphigenia*, French-white, very sweet-scented.
- *Madame Louis Thibaut*, rosy lilac, shaded, very double.
- *Madame Miellez*, snow-white, form very superior.
- *Mademoiselle Annie Salter*, rosy lilac, striped and spotted with white.
- *Red Cross Banner*, rosy purple, compact and well filled.
- *Reine Blanche*, white, very substantial petals.
- *Reine Victoria*, lilac, shaded with violet.
- *Schmuck des Ilmthales*, lavender, shaded with rose.
- *Van Houttei*, bright rosy red, shaded with French-white, full.
- *Verschaffelti*, rosy lilac, shading off to pale lavender.
- *Victor de Pruines*, red.
- *William Rollison*, rose, shading off to blue.

For greenhouse decoration, for bedding, or for training against a wall, trellis, etc., the *Petunia* has always been a valued auxiliary; and now that it has become impressed with a new character, its value will be considerably increased.

BRIEF REMARKS ON A FEW OF THE HARDY PERENNIAL GERANIUMS.

BY MR. WILLIAM HOLCROFT, UPHOLLAND.

HAVING seen from time to time that the greenhouse kinds of this genus have been ably dealt with, and that the hardy ones have had little notice taken of them, I hope that you will excuse my trespassing on your valuable pages in calling attention to them, as they are often much neglected in the flower border.

The old and beautiful flowering *Geranium striatum* ought on no account to be excluded from the border, for its low spreading and free flowering habit renders it a great favourite where grown. Its flowers are pale pink, nearly white, with a fine net-work of darker veins, and is really showy. This species prefers a moderately shady place. It may be distinguished from the rest by having a brown spot on the corners of the divisions of the leaves. *G. Ibericum* is a fine species, with large, showy, blue flowers and purplish veins, growing about a foot high, and having such excellent free flowering qualities as entitle it to a place in every cluster of herbaceous plants. It will grow in almost any soil or situation. *G. pratense*, although a taller plant than either of the above, is really a very good thing, and may be said to flower all the summer. Its leaves are deeply cleft, and flowers of a bluish-violet colour; the stems are often four feet high. Its white variety frequently has flowers with a blue stripe in each petal. This, I think, a really good plant, and a most beautiful object when covered with its pretty white flowers. The double blue variety is not, in my opinion, equal to either of the above. *G. macrorhizum* is another beautiful dwarf kind, with purple flowers. It is an old, but not common, plant. It may be urged against this species that its large, long, woody stems look unsightly; but these are all covered by its leaves in summer, and its flowers alone would compensate for many faults. *G. sylvaticum* is another charming species, with bluish-violet flowers, growing about two feet high. This will flourish in the deepest shade, and on that account is very valuable for some situations. The white variety of *sylvaticum* is very beautiful; in fact, more so than the species itself; its pure white flowers are very ornamental. *G. phæum* is an old plant, with flowers almost black, yet not devoid of beauty, for it blossoms most freely. *G. angulatum* is a fine pale-pink flowered species, with angular stems about two feet high. It is a copious flowerer, and is not at all partial to soil. *G. sanguineum* is a very striking plant, with fine rose-coloured flowers. Its prostrate stems, creeping over the ground and covered with large flowers, are admired by every one. *G. Lancastriense* is a plant near to the last named, but abundantly distinct. It is more compact in habit, often forming a nice tuft about one foot in diameter. Its flowers are smaller than the last, pale purple, with darker veins. It is not a plant commonly met with; indeed, not so much as it deserves. *G. Vlassovianum* is another charming species, quite dwarf; its leaves rise on foot-stalks about four to six inches high, and are deeply cleft. Its blossoms are pink, and beautifully variegated with darker veins. It is a very scarce species. *G. palustre* is a very pretty kind also, about two feet high, with purple-violet flowers. Each petal is marked with three brown nerves. *G. cristatum*, a handsome species, with trailing stems covered with purple flowers, very elegantly veined. If this plant were seen grown in a small bed, I think it would soon become a general favourite. I have it so grown, and there are hundreds of its lively flowers expanded at a time. It remains in bloom for a long time. *G. nodosum* is an old and very pretty species, with purple-veined flowers and shining foliage. It is a dwarf plant and very effective. Although a native of Cumberland, it is a scarce species and very seldom met with. *G. Endrewsii* is without doubt the best of hardy Geraniums, its pink blossoms are very beautiful indeed, and are produced in great profusion from June, until cut down by the frost. The habit of the plant is good, forming a patch, and growing about a foot high. When grown strong, it is a most beautiful object. *G. maculatum* is a rare American species, with large pale purple blossoms—it succeeds best in the shade, the flowers being deeper coloured, if so grown. The American botanist Michaux committed a sad blunder in calling this ***maculatum***, for I have hitherto been unable to find it spotted in any way. *G.* ***Wallichianum*** is a fine plant, quite dwarf, with large blue flowers; but it is not every situation in which it will stand the winter. *G.* ***Anemonæfolium*** is rather scarce, with nice Anemone-like foliage, and large flowers of a purplish-red; this seldom exceeds a foot in height, and is a free flowerer, especially when turned out in May. Being a native of Madeira, it is not quite hardy, however. *G.* ***argenteum*** is a rare plant, with handsome silvery leaves, and large blossoms of a pale-red, with deeper-coloured veins. The hardy Geraniums will flourish in any loamy soil, and several will be all the better for a liberal supply of water in summer.

RECENT IMPROVEMENTS IN HORTICULTURAL APPARATUS, IMPLEMENTS, AND MANUFACTURES.

IN resuming our annual review of the improvements, or inventions claiming to be such, in matters appertaining to gardening, we shall commence with a notice of some of the articles exhibited at the Horticultural Society's summer display at Chiswick, as already promised. The number of exhibitors in this department was increased over the last year, which is so far satisfactory; for of the utility of exhibiting such things, as well as of showing flowers and fruits, there can be no question. Beginning with heating apparatus, we have to notice Mr. Meiklejon's Patent Cruciform, or Webbed Boiler. Among the very many forms in which boilers for horticultural purposes are now made (which, in fact, are almost endless, for as we are told, so we believe, man "hath sought out many inven-

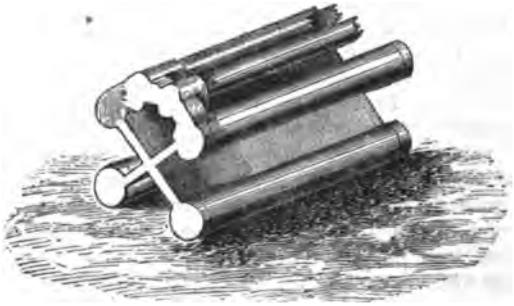

Fig. 1.

tions"), a considerable number of these have been unfortunately failures, or of little practical utility. We have had no experience ourselves of the working of Mr. Meiklejon's boiler, and are, from our own knowledge, unable to say anything of its capabilities; nevertheless we consider that one great requisite in a good boiler may be met with in this, and that is, the amount of surface exposed to the fire.

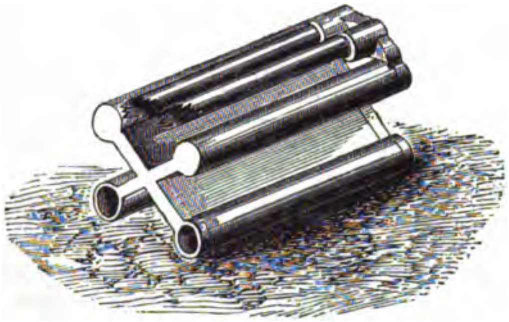

Fig. 2.

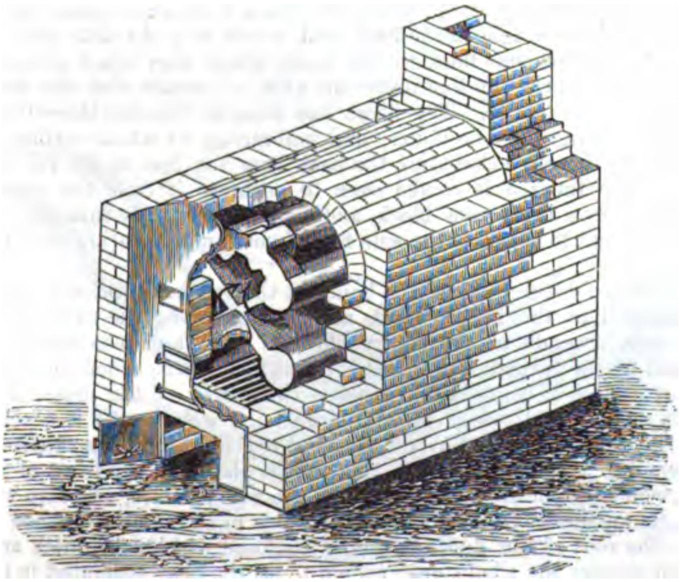

Fig. 3.

In the early days of hot-water heating, we had boilers of the most incapable forms; in fact, no better than so many coppers might be, where a large body of water was acted upon by the fire over a limited area, the consequence of which was a great waste of fuel, and the time taken to raise the temperature of a house was proportionately increased. After a while, however, the makers began to open their eyes to the real state of the case, and the result was, that a gradually increasing improvement became visible, and the disgust or disappointment so frequently caused by such ill-adapted contrivances as had been in use formerly, was, in a great measure, got rid of. For his boiler, Mr. Meiklejon claims the following advantages:—"Simplicity in form, and an immense surface exposed to the action of the fire, viz., in a boiler 4 feet long by 2 feet 3 inches broad, upwards of 60 square feet of heating surface; and the little jointing it requires being in such positions that the whole can be easily made and kept perfectly water-tight, thus possessing in a high degree the properties of perfect safety and great heating powers.

"Referring to the illustrations, Figs. 1 and 2 show the front and back views of the boiler. Fig. 3 shows the boiler as built into the brick-work—a portion being shown broken up to exhibit the internal arrangement of furnace and flues. The furnace is shown under the front part of the boiler, the flame from which passes along under the lower angle to the back end, where it is divided, and returns by the two side flues to the front, where they again re-unite, and pass along the top flue under the arch in contact with the flow-pipes from the boiler. The flame has thus to traverse three times the entire length of the boiler, and embracing its whole surface in its course, thereby exhausting the heat from the fuel to the full extent. The furnace is roofed over to separate it from the return side flues by a brick arch block, and a similar cover is furnished at the back end to separate the side flues from communicating with the chimney.

"The cold water enters the boiler at the two back sockets, which are placed at the lowest level, and passing along the two bottom channels, ascends to the centre through two thin webs which are heated by the furnace below and the side flue above; when the water in the course of being heated reaches the centre of the cross, it is again divided and passes up through similar webs, until it reaches the top channels heated by the side and top flues, and from these it passes into a union arch pipe; this arch is placed on the front of the boiler on the opposite end from which the water enters, and into two sockets on this arch are fixed the two flow pipes which are made to form the roof of the flue, and being enclosed within the brick arch which encases the whole, are exposed to all the heat generated in the oven of the furnace."

Monro's Cannon Boiler.—These boilers, of which we gave a figure and description in our last volume, have given much satisfaction, and are now at work in all parts of the country. On visiting the manufactory of Mr. Jones, 6, Bankside, Southwark, who has made arrangements for their sale, as sole agent, we were shown such evidence as left us no doubt of their economy and efficiency. We understand they have been fixed in some of the first-rate establishments in the country. One great advantage they possess is, that they require very little attention in working.

Mowing Machines.—Connected with the exhibition of implements, at the late horticultural fête, at Chiswick, was a great trial of Mowing Machines that excited much interest. A really efficient machine for cutting grass was, until recently, a desideratum; it is now, however, filled up by the machines that stood the ordeal at Chiswick. The place selected for the competition was in the Arboretum of the Society, where a fair trial was certain to be afforded, and space was allotted to each exhibitor where the grass was of equal length and thickness. The result of the contest was that Mr. Green's machine was declared the winner, Messrs. Shanks' second, Mr. Ferrabee's third, and Messrs. Dean and Co.'s the most inefficient of all. With respect to the comparison of Messrs. Green and Shanks' Grass Cutters, they may be said to approximate very closely in merit; in fact, as regards the construction and work of the rival cutters, they may be considered equal, and in point of price Messrs. Shanks' are the cheapest. The manifest superiority of their machines consists in the way in which they were made to turn sharp curves, and to cut round tree, which those of Messrs. Dean were not able to do half so effectually. Messrs. Shanks' latest improvements in Mowing Machines are illustrated by Figs. 4 and 5.

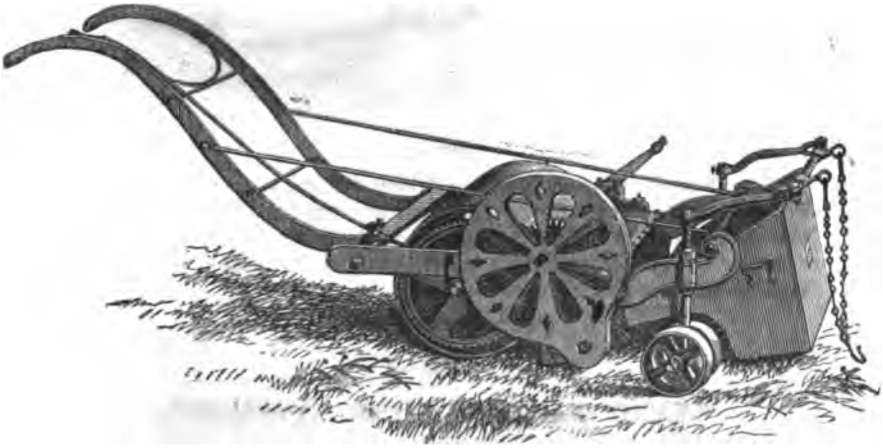

Fig. 4.

Fig. 4 shows their Horse-power Machine, the improvements in which consist in introducing swivelling pulleys to the front of the machine, which greatly facilitate quick turning; the method of adjusting it to the required cut has been much simplified; the wheels are effectually protected by a guard, thereby entirely preventing plants or flowers from sustaining injury; and the machine so constructed as to make it work equally well on uneven as on level ground. The improvements effected this season render this machine complete in its three operations of mowing, rolling, and collecting grass. The machines are made of the best material and workmanship, are exceedingly durable, very easily managed, and the execution of the work is unsurpassed.

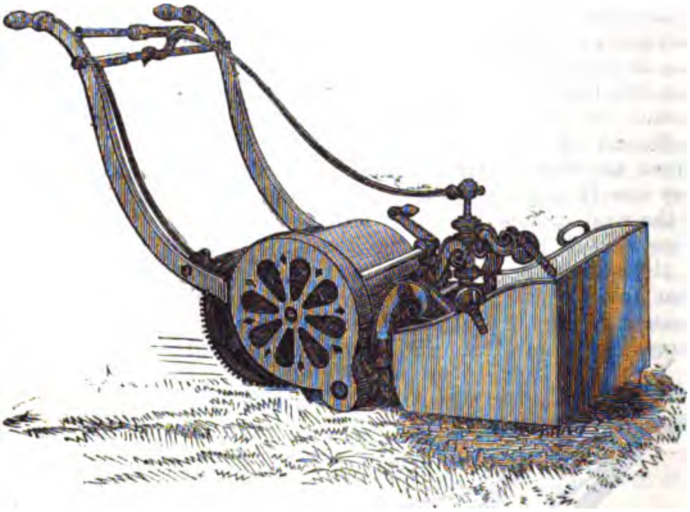

Fig. 5.

Fig. 5 is their Hand Machine, which will cut close to the edge of flower-beds, and cut into the most intricate turnings and windings in the flower-garden. The length of cut can be regulated in a few seconds by merely turning a screw; and it is capable of mowing equally well on even or uneven ground.

(*To be continued.*)

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GRAND NATIONAL ROSE EXHIBITION,

ST. JAMES'S HALL, JULY 1ST.

THE first attempt to get up an Exhibition of Roses has succeeded even beyond expectation, and may be looked on as an earnest of many future gatherings of the kind, each year improving on its predecessor. The Roses were arranged on long tables in four rows, the length of this beautiful hall, with one across at the end. All the Roses shown were cut blooms, yet, notwithstanding the heat of the weather, almost every flower shown was in good condition. The large collections from the principal growers included from a hundred to a hundred and forty blooms in them, and were exhibited in threes of each kind, with buds. The smaller collections of twenty-four comprised but one bloom of each. Devices of flowers and nosegays of Roses were interspersed about the hall. The attendance of visitors, after the time allotted to the private view was over, was very considerable, and the body of the hall was almost crowded; the attendance of lady visitors who came to render homage to the Queen of Flowers 'was great, which is in itself an evidence of the amount of interest taken in this lovely flower by the "fairest of the fair"—the lady amateurs of England.

Amongst the exhibitors will be found the names of all the Rose growers of note, as Messrs. Cranston, Paul, Francis, Rivers, Veitch, and Cant; also of several well-known amateurs and gentlemen's gardeners, including Mr. Hedge, Mr. Fellowes, Hon. and Rev. C. F. O. Spencer, Rev. S. R. Hole, Rev. Josh. Walker, Capt. Mansell, Rev. H. Helyer, Mr. Worthington, Mr. Terry, gardener to Giles Puller, Esq., etc. The principal prize was awarded to Messrs. Paul, of Cheshunt, although comparison was almost equal between those growers and Mr. Cranston, of King's Acre Nurseries, Hereford, whose flowers had travelled very considerably further, and were yet in splendid condition.

In Messrs. Paul's stands the best Roses were—Victor Trouillard, a fine deep crimson, H. P.; La Ville de St. Denis, a fine rosy carmine, H. P.; Madame Hester Jacquin, a very large rose, H. P.; Madame Vidot, fine blush, H. P.; Cynthe, rose, G.; Souvenir de la Reine d'Angleterre, a fine bright rose, H. P.; Comte de Nanteuil, a large, full, rosy-red, H. P.; Duchess d'Orleans, lavender blush, H. P.; Prolific Moss; Lady Stewart, light blush, H. C.; Paul Ricaut, rosy-crimson, very fine, H. B.; Souvenir d'un Ami, a very fine, large rose, T.; Madame Place, light rose, H. P.; Madame Rameau, a very distinct colour, dull purple, H. C.; Panachè d'Orleans, flesh, H. P.; Madame Knorr, a large, full rose, H. P.; Gloire de Vitry, very fine and large, H. P.; Geant des Batailles, splendid deep crimson, H. P.; Paul Perras, bright rose, H. B.; Lord Raglan, deep velvety crimson, H. P.; Mathurin Regnier, pale rose, H. P.; Madame Zoetmans, creamy white, shaded with buff, D.; Caroline de Sansal, flesh, H. P.; Joan of Arc, salmon-white, rosy centre, very fine, H. P.; General Jacquimenot, vivid red, very fine, H. P.; General Pelissier, delicate rose, fine, H. P.

In Mr. Cranston's collection the following were the best:—La Reine, rosy-pink, H. P.; Duchess of Sutherland, pale rose, a splendid flower, H. P.; Madame de Mansel, blush, H. P.; Souvenir de la

Reine d'Angleterre; Mrs. Rivers, clear flesh colour, very fine, H. P.; General Pelissier; Lady Stewart; Pius IX., crimson purple, H. P.; Madame Vidot; Gloire de Dijon, salmon-yellow, very fine, T.; Chénédolé, vivid crimson, H. C.; Geant des Batailles; William Griffiths, pale rose, H. P.; Jules Margottin, cherry colour, H. P.; Prince Leon, bright crimson, H. P.; Bizarre Marbrée, large marbled rose, G.; Baronne Prévost, light rose, H. P.; Caroline de Sansal, clear flesh, H. P.; Colonel de Rougemont, pale rose, H. P.; Baronne de Heeckeren, rosy-pink, H. P.; Charley Souchet, purple crimson, B.; Amandine, delicate rose, H. P.; Madame Bravy, cream colour, T.; Laura Ramond, delicate flesh, H. P.; Standard of Marengo, brilliant crimson, H. P.; Louis Peyronny, large silvery rose, H. P.; Emperor Napoleon, velvety scarlet, very fine, H. P.; Jacques Lafitte, light crimson, H. P.; Prince Imperial, a very large sized flower. Although awarded second in this class, Mr. Cranston took the lead in stands of twenty-four blooms, and his flowers in this stand were undoubtedly the best in the hall. Some of them were quite new, and one of these, named Lælia, was an extremely large rose-coloured flower, and excellent in every point, exceeding any flower in the room as regards size.

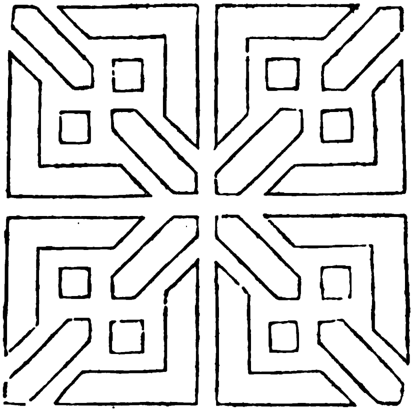
Of the amateur exhibitors, J. Hedge, Esq., of Colchester, had some very fine blooms, including Reine Victoria, General Jacquimenot, William Griffith, Adèle Prévost, a fine, large, well-formed flower, G., and Caroline de Sansal. Mr. C. Grant, gardener to R. Fellowes, Esq., of Shottesham, near Norwich, sent some remarkably fine blooms of Jules Margottin, a superb bright cherry-coloured hybrid perpetual; Baron Hallez, dark red, large, and full; and Coupe d'Hébé, a well-known splendid pink hybrid Bourbon. In the stands of the Rev. S. R. Hole, of Caunton Manor, Newark, one of the most energetic promoters of the exhibition, were many fine blooms. We specially remarked these—Caroline de Sansal, Oracle du Siecle, Auguste Mie, Madame Trapa, William Griffith, Baron Hallez, Naomi, Prince Leon, Paul Ricaut, and Inermis. The number of stands contributed by this exhibitor, and the excellent condition in which his flowers were, although coming so far as Newark, was highly creditable, and show that Mr. Hole had "put the shoulder to the wheel" with effect. Messrs. Veitch, of Exeter, were not successful in obtaining a prize, although they had some very fine flowers, in particular blooms of Lord Raglan, Village Maid, Mrs. Rivers, Gloire de Dijon, and Crested Moss.

In Moss Roses, Messrs. Paul came first, and was followed by Mr. Rivers, whose collection occupied twenty-two boxes. The Tea-scented and Noisettes were fine. In these Mr. Francis, of Hertford, was first, and Messrs. Paul next. Space prevents anything like justice being done to their flowers by a detailed account; we may only observe that Mr. Francis had a large white Noisette, named Madame Deslongchamps, that was better than any other of its class we have seen.

There were entire boxes of particular Roses, in sorts, from Mr. Cranston—Geant des Batailles, Jules Margottin, and General Jacquimenot. Mr. Rivers had Paul Ricaut, Prince Leon, Madame Vidot, and Lord Raglan.

DESIGN FOR A FLOWER-GARDEN.

BY MRS. WILSON.



THE design here given is in the geometrical style, and is simple, yet pretty. It is not original, having obtained it from a manuscript book containing about a hundred similar designs, some of them very good, and others inferior, but all of them in the above geometrical or Dutch style. The book has internal evidence of being written not later than the reign of Queen Anne, at which period Dutch building and Dutch flower-gardens were much in vogue. The plan would do well for the front of a house, or as a flower-garden on grass in front of a conservatory, or other such erection. No scale is given, but there will be no difficulty in laying it out to suit any extent of ground. The first thing to be done is to get the centre, and then the square boundary; after which, two diagonals may be drawn from corner to corner, and the large square divided into four smaller ones; then the setting off of the beds will be very easy. In laying out plans of flower-beds, or walks, I have seen an excellent method recommended in one of the early volumes of the *Cabinet*, whereby we may be enabled to judge of the effect, which consists in watering the beds, or the walks, which are to be on gravel, with yellow ochre. This will show how it would look when laid out, and is not much trouble to do.

The present design would also make two frontage gardens for semi-detached houses, if the centre walk were widened, and a light wire fence run down the middle for a partition.

A FEW WORDS ON THE CAMELLIA.

BY THE FOREMAN OF A LONDON NURSERY.

THE Camellia has always been highly esteemed as one of the finest greenhouse plants, not only for its handsome blossoms, but also for the beauty of its fine green foliage, which, if the plants be healthy, is at all times attractive.

There are certain points in the management of the Camellia that do not appear to be so fully understood as they should be, and hence we meet with a constant repetition of the same inquiries in almost every gardening periodical. "What is the cause of my Camellia buds falling off?" and "Why do my Camellia leaves turn yellow?" appear to be the most frequent. The treatment required to keep the plants in a healthy flowering condition is, in reality, simple. Such being the case, it appears to me that it may not be lost time, at this season, to say a few words on the subject, although much has been written concerning it in the *Cabinet*.

First then, where young plants are commenced with, they are generally received from the nursery in small-sized pots. In order to make handsome plants, they should be headed down if any ways drawn or straggling, or, at any rate, cut in rather closely and pretty near to where they have been "worked." It is better to do this when the plants are received, if at all necessary, for the longer it is deferred the worse they will get, and the object of losing a season is as nothing when handsome-formed plants are desired. After the operation they will grow freely enough, and compensate for the delay that has taken place. The best plan, perhaps, where it can be done, is to select such plants at the nursery as will not require to be cut at all, and this should be acted on whenever it is practicable. The best place for the young plants is in the greenhouse, where they are secure from cold draughts, or the cooler part of an airy stove will be found to suit them almost as well.

Secondly, it is necessary to remark more particularly, that if the plants be exposed to the open air until they have completed their growth and set their bloom-buds, much injury is likely to be sustained. The Camellia is not a particularly tender plant, yet it never does well in a situation where it is liable to sudden changes of temperature. When the plants are in the stove, they should be brought first into the greenhouse before they are taken to the cold pit. This is too often overlooked.

When the Camellia begins to grow, it requires a gradual increase of temperature, and no check. In summer, when the plants are often set out of doors, they are liable to sustain a great variety of changes as regards moisture and temperature. They should be placed so that they may be in a sheltered situation, where neither cold winds nor mid-day sun can reach them. A canvas house or screen should be provided for them, or they would do equally well in the greenhouse without any artificial heat; they would then continue growing till their bloom-buds are developed. As soon as the bloom is over, it is a critical period with them; at which time they should not be allowed to get quite dry at the root, nor, on the other hand, be too wet; and let them be carefully screened from the hot sun. Shifting should be done either before the plants make their growth, or when they have begun to swell their buds in the early spring months. It must be done without disturbing or injuring the fibres in any way, or the consequence is, ten to one, they will drop their buds. The best soil, and one that I have always used, is composed of good loam from rotten turf one-half, one-fourth peat, and one-fourth a mixture of horse and cow-dung, that has stood long enough to have become a black mass. If these particulars be attended to, few or none will have cause to complain of their plants losing either buds or leaves.

NOTES ON NEW AND RARE FERNS.

BY MR. W. S. PRESTOE, VICTORIA PARK.

IN giving descriptions of new and rare species of this lovely and interesting tribe of plants, I shall confine myself to those not generally known. I shall, at the same time, give a few practical hints on their management; and, as I pass through the newer species, I shall enumerate many of the commoner ones, with the intention of being useful to amateurs, adding to them as many synonyms as I can command. Every successive spring we have large importations of what are said to be *new Ferns*, which turn out, however, to be some well-known species with different names. There is scarcely a Fern which has not two or more names, and some many more. I will mention two well-known species, for example, viz., *Callipteris Malabarica* is known by the names of *Diplazium ambigua*, *Diplazium esculentum*, *Microstegia ambigua*, *Asplenium dubium*, *Digrammaria ambigua*, and *Anisogonium esculentum;* and this same plant I know under seven more names. Again, the well-known *Goniophlebium subauriculatum* is known as *G. Pleopeltis*, *Polypodium subauriculatum*, *P. Reinwarthii*, and *P. metamorphum*. This will show that every so-called new Fern requires to be seen before it is purchased. As my list progresses, there will be many like the above; and, in my description of any species, I shall note if they be known in the trade or otherwise, as an assistance to purchasers.

In arranging the genera, I shall follow the system laid down by one of our best English authors, Mr. J. Smith, the able curator of the Royal Gardens, Kew. His mass of materials and his laborious studies have rendered his name famous, and himself our best authority.

Tribe—Polypodieæ. (J. Smith.)

Sori round, oblong, or linear, destitute of a special indusium.

Division—Eremobrya. (J. Smith.)

Fronds solitary, attached to the rhizome by an articulation. This division is readily seen when a frond is half decayed; it will leave the rhizome without any force. For example, *Polypodium vulgare* (Linn).

Polypodium. (J. Smith; Linn. in part.)

Generic Description.

Sori round or oblong, destitute of an indusium; veins forked, free, the lower exterior venule bearing upon its apex the sporangia; fronds pinnatifid, pinnate, or bipinnate, attached to the rhizome with a joint; rhizome creeping; in *P. fraternum* there will sometimes be found some anastomosing veins, which show that too much stress must not be placed on veins for forming genera.

P. Schkuhrii (Radd). Fronds pinnate, linear-lanceolate, from six to twelve inches long, of a bright green colour; sori small; pinnæ linear, about one inch long, alternate; the margin of the pinnæ furnished with very fine hairs. A native of Brazil. It requires a warm stove; the soil should be rough peat and leaf mould, with a good quantity of silver sand; the pots should be half filled with broken crocks. This plant is in the trade under the name of *P. pumilum*. I am not aware, however, of the true *P. pumilum* being in any living collection.

P. fraternum (Schlecht.), *P. Henchmanii* (J. Smith). Fronds ovate-lanceolate, pinnate, from one to two feet long, of an emerald-green colour; pinnæ lanceolate; the lower pinnæ opposite the upper, alternate; sori large. A half-deciduous plant. A native of Mexico. It delights in a warm greenhouse; soil, rough peat and leaf mould, with plenty of broken pots intermixed; it does well when established on a decayed block of wood. A few nurserymen have this species.

Goniophlebium. (Presl.) *Polypodium* (of some).

Generic Description.

Sori round, rarely oblong, destitute of an indusium; veins anastomosing, with a free venule in each areole, bearing upon its apex the sporangia; fronds pinnatifid or pinnate, from a few inches to many feet long, articulated near the rhizome; rhizome creeping. This genus is readily told from *Polypodium* by its angular anastomosing veins.

G. cuspidatum (Presl), *G. argutum* (Hort. Kew), *Polypodum argutum* (Wall), *P. grandidens* (Kunze), *P. cuspidatum* (in gardens). Fronds lanceolate, pinnate, from two to four feet long; the apex of the frond pendulous; pinnæ lanceolate, acuminate, serrate, alternate, rarely opposite, of a dark green colour; sori large, immersed in the substance of the pinnæ so as to form upon the upper surface a protuberance. A native of Java. It delights in a warm, moist stove; soil, rough peat and leaf mould, with plenty of broken pots mixed up. The plant should be well elevated above the rim of the pot. A large pan is best adapted for the well-doing of all the *Goniophlebiums*.

G. colpodes (J. Smith), *Polypodium colpodes* (Kunze). Fronds lanceolate, the lower portion pinnate, the upper pinnatifid, slightly pendulous, from one to two feet long, pinnæ lanceolate, in the centre of the frond; the opposite margins at the base of the pinnæ form three slight angles. A native of Venezuela. The treatment the same as *G. cuspidatum*. I am not aware of this species being in the trade at present.

G. verrucosum (J. Smith), *Polypodium verrucosum* (Wall). Fronds linear-lanceolate, pinnate, from four to nine feet long, pendulous; pinnæ lanceolate, acuminate, slightly serrate, of a beautiful glossy green colour; sori large, very much immersed in the substance of the pinnæ, which forms upon the upper surface very conspicuous protuberances, rendering it the most distinct of the whole genus; the footstalk or base of the pinnæ is surrounded with small black scales. A native of Malacca. The treatment the same as for *G. cuspidatum*. To see this plant in perfection, it should be suspended from the roof of the stove in a basket, where it will make a magnificent object. I have counted at Kew Gardens fifty-nine pairs of pinnæ upon one frond, the length of it being nine feet two inches. A few nurserymen have this species.

G. fraxinifolium (J. Smith), *G. neriifolium* (in gardens), *Polypodium fraxinifolium*, *P. longifolium* (Presl.) A native of tropical America.

G. menisciifolium (J. Smith), *G. Albo-punctatum* (Hort. Kew), *Polypodium menisciifolium*, *P. Albo-punctatum*. A native of Brazil.

G. subauriculatum (Presl), *G. Pleopeltis* (Fee), *Polypodium subauriculatum*, *P. Reinwardtii* (Kunze), *P. metamorphum* (Kunze). A native of the Malay archipelago.

G. distans (J. Smith), *G. deflexum* (Hort. Kew). *Polypodium distans* (in gardens), *P. deflexum*, (Lodd.) A native of Tropical America.

(*To be continued.*)

WHAT PLANTS ARE MADE FOR.

IN the first place, in the very act of making vegetable matter, plants fulfil one great purpose of their existence, that is:—

They purify the air for animals.—That part of the air which renders it fit for breathing is called oxygen; this makes up about one-fifth part of the air we breathe. At every breath animals take in some of this oxygen and change it into carbonic acid; that is, they combine the oxygen with carbon from their blood, which makes carbonic acid, and breathe out this carbonic acid into the air, in place of the oxygen they drew in. Now this carbonic acid is unfit for the breathing of animals—so much so, that if it were to increase so as to make any considerable part of the atmosphere, man and other animals could not live in it. But plants prevent the carbonic acid from accumulating in the air. While the animals need the oxygen of the air, and in using it change it into carbonic acid, hurtful to them, plants need the carbon of this carbonic acid; indeed, it makes a very large portion of their food—as we plainly see it must, when we know that about half of every part of a plant is carbon, that is, charcoal. And this carbonic acid is the very part of the air that plants use; they constantly take it from the air, decompose it in their leaves during sunshine, keep the carbon, and give back the oxygen pure, so keeping the air fit for the breathing of animals. The carbon which plants take from the air in this way, along with water, etc., they assimilate, that is, change into vegetable matter: and in doing this—

They make all the food which animals live upon.—Animals cannot live upon air, water, or earth, nor are they able to change these into food which they may live upon. This work is done for them by plants. Vegetable matter in almost every form—especially as herbage, or more concentrated in the accumulations of nourishment which plants store up in roots, in bulbs, and tubers, in many stalks, in fruits, and in seeds—is food for animals. " And to every beast of the earth, and to every fowl of the air, and to everything that creepeth upon the earth," as well as to men, is given "every green herb for meat." Some animals take it by feeding directly upon vegetables; others, in feeding upon the flesh of herbivorous animals, receive what they have taken from plants. Man and a few other animals take in both ways what plants have prepared for them. But however received, and however changed in form in the progress from plant to animal or from one animal to another, all the food and all the substance of all animals were made by plants. And this is what plants are made for.

Notice also—that plants furnish us not merely needful sustenance, but almost every comfort and convenience. Medicine for restoring, as well as food for supporting health and strength, mainly comes from plants.

They furnish all the clothing of man;—not only what is made from the woolly hairs of certain seeds (cotton), or from the woody fibre of bark (linen), and what is spun from mulberry leaves by the grubs of certain moths (as silk), but also the skin and the fur or wool of animals owe their origin to plants, just as their flesh does.

They furnish utensils, tools, and building materials, in great variety; and even the materials which the mineral kingdom yields for man's service (such as iron) are unavailable without vegetables, to supply fuel for working and shaping them.

They supply all the fuel in the world; and this is one special service of that vegetable matter which, in the solid form of wood, does not naturally serve for food. Burned in our fire-places, one part of a plant may be used to cook the food furnished by another part, or to protect us against cold; or burned under a steam-boiler it may grind our corn, or carry us swiftly from place to place. Even the coal dug from the bowels of the earth is vegetable matter, the remains of forests and herbage which flourished for ages before man existed, and long ago laid up for the present use. We may proceed one step further, and explain where the heat of fuel comes from; for even a child may understand it. Plants make vegetable matter only in the light, mostly in the direct light of the sun. With every particle of carbonic acid that is decomposed, and vegetable matter that is made, a portion of the sun's heat and light is absorbed and laid up in it. And whenever this vegetable matter is decomposed, as in burning it, this heat and light (how much of each depends upon the mode of burning) are given out.

So all our lighting as well as warming, which we do not receive directly from the sun, we receive from plants, in which sunlight has been stored up for our use. And equally so, whether we burn olive-oil or pine-oil of the present day, or candles made from old peat, or coal-gas, or lard, tallow, or wax—the latter a vegetable matter which has been somewhat changed by animals. *And, finally*—

The natural warmth of the bodies of animals comes from the food they eat, and so is supplied by plants. A healthy animal, no longer growing, receives into his system a daily supply of food without any corresponding increase in weight, or often without any increase at all. This is because he decomposes as much as he receives. If a vegetable-feeder, far the greater part of his food (all the starch of grain and bread, the sugar, oil, etc.), after being added to the blood, is decomposed, and breathed out from the lungs in the form of carbonic acid and water. That is just what it would become if set on fire and burned, as when we burn oil or tallow in our lamps or candles, or wood in our fire-places; and in the process, in animals no less than in our lamps and fire-places, the heat which was absorbed from the sun, when the vegetable matter was produced from carbonic acid and water, is given out when this matter is decomposed into carbonic acid and water again. And this is what keeps up the natural heat of animals. We are warmed by plants in the food we consume, as well as by the fuel we burn.

In learning, as we have done, How Plants Grow, and Why they Grow, have we not learned more of the lesson of the text placed at the beginning of this book, and of the verses that follow? "Wherefore, if God so clothe the grass of the field, shall He not much more clothe you? . . . Therefore take no thought, saying, What shall we eat? or, What shall we drink? or, Wherewithal shall we be clothed? For your Heavenly Father knoweth that ye have need of all these things." And we now perceive that causing plants to grow is the very way in which He bountifully supplies these needs, and feeds, clothes, warms, and shelters the myriads of beings He has made, and especially Man, whom He made to have dominion over them all.—From "*How Plants Grow,*" a recent American publication of much excellence, by that distinguished botanist, Dr. Asa Gray.

NOTES ON NEW AND SELECT PLANTS.

DENDROBIUM FALCONERI, *var.* Nat Ord. *Orchideæ.*—Although possessing smaller flowers, with more obtuse sepals and petals, this can only be considered a variety of the handsome *D. Falconeri*. The ground colour of the blossoms is pale lemon or white, the petals and sepals tipped with small purple spots, the lip rich yellow, slightly pubescent, with a deep sanguineous spot near the base and a small purple mark at the apex. The flowers measure about two inches across, and are produced generally two together at the joints of the long, pendent, leafless stems. The leaves are about a finger's length, and much sheathed at the base. It is a native of Assam or Khasya, and was sent to Europe by Mr. Symons. It blossomed with Messrs. Jackson, of the Kingston Nursery, in March last. (*Bot. Mag.*, 5058.)

60. ILEX CORNUTA. Nat. Ord. *Ilicineæ.*—One of the finest Hollies, as regards foliage, we have ever seen. It is a native of China, having been detected by Mr. Fortune in the neighbourhood of Shang-hai and Kin-tang, bearing its flowers in the month of April. During a later visit to the same place, Mr. Fortune succeeded in securing plants or seeds which were fowarded to Messrs. Standish and Noble, of the Bagshot Nursery. It is generally supposed that it will prove to be quite hardy with us, although hitherto the young plants that have shown any disposition to flower, are those that have been kept in pots under glass, in a cool frame. The plants at Kew are about a foot and a half high, but we possess no information as to the dimensions the species attains in China. The leaves are deep shining green, alternate, some of them measuring four inches in length, of a very firm, leathery substance, almost square in form, with long and stout spines at the corners and apex, where there are three, two pointing up and the middle one downwards, the margin between them being much recurved. The berries are described as being of large size, and a brilliant coral red. (*Bot. Mag.*, 5059.)

61. RHODODENDRON VIRGATUM. Nat. Ord. *Ericeæ.*—A dwarf *Rhododendron*, growing not more than about eighteen inches in height, of a slender *twiggy* habit, and bearing pretty delicate blush or pink blossoms, in small heads of three or four together, each flower measuring about an inch across the mouth. The leaves, which are scattered chiefly at the extremities of the branches, are small and neat in appearance. It inhabits the ravines skirting the pine-forests of

the Lachen Valley, in Sikkim, where it was met with by Dr. J. D. Hooker in great abundance; as also more recently by Mr. Booth, in similar situations in Bhotan. It flowered in a cool frame in April last. (*Bot. Mag.*, 5060.)

62. POLYGONATUM PUNCTATUM. Nat. Ord. *Smilacineæ.*—According to Dr. Wallich, this plant is a native of Nepal; it has also been found in Sikkim, growing at an elevation of from 7 to 10,000 feet above the sea; and lately by Mr. Booth, in Bhotan. The flowers are small, green and white, with a few faint pink spots, and produced generally two together in the axils of the leaves; the latter are thick and fleshy, alternate, and of a shining green; the stems much spotted with brown. (*Bot. Mag.*, 5061.)

63. THYRSACANTHUS INDICUS. Nat. Ord. *Acanthaceæ.* A pale-flowered species, but possessing considerable attractions, although not so showy as others of the genus. It is a shrubby stove plant, with dark green leaves, tapering gradually, and about three inches long The blossoms are borne in a spike at the extremity of the stems, funnel-shaped, two inches long, white, with a few purple lines, and the stems furnished with purple anthers. It was raised by Mr. Nuttall, from seed sent by Mr. Booth from Bhotan. (*Bot. Mag.*, 5062.)

64. INDIGOFERA DECORA. Nat. Ord. *Leguminosæ.*—Another of Mr. Fortune's beautiful introductions from China. It is with us a greenhouse shrub, of trailing habit, and does well trained against a pillar. It blossoms early in the season, and at that period makes a charming display of its long, lively pink racemes, from six to ten inches long, crowded with its pretty pea-shaped blossoms; the leaves are pinnate, nine inches long, of a light green. It is a plant by no means so generally known or cultivated as it deserves to be. (*Bot. Mag.*, 5063.)

65. FICUS CERASIFORMIS. Nat. Ord. *Moraceæ.*—An extremely interesting little Fig, entirely covered, excepting the leaves, with a brownish pubescence, and growing from three to four feet in height; the foliage is fine, of a bright green above and pale below. The fruit are solitary, or two together, nearly of the size of cherries, of a bright orange colour, covered with small tubercles, but never (as in most *figs*) farinose. When in a state of maturity, they exhale a sweet odour. It is a native of Silhet, in the East Indies. (*L'Illust. Hort.*, 168.)

66. IRIS KÆMPFERI. Nat. Ord. *Iridaceæ.*—This is, almost without exception, one of the most lovely plants of the tribe, a native of Japan, and for which we are indebted to Dr. Siebold. It is very distinct from all its congeners in its specific characters, and is a charming addition to a collection of open-air plants. We believe it flowered for the first time in Europe in July of last year, at M. Verschaffelt's nursery, Ghent. Its blossoms are of a beautiful rosy-purple colour, handsomely veined with a deeper shade, with a bright

yellow spot at the base, fading off to blue; the foliage is long and narrow, of a deep green. (*L'Illust. Hort.*, 157.)

67. **Lælia Brysiana.** Nat. Ord. *Orchidaceæ.*—Names after M. Brys, who received this strikingly handsome *Lælia* from Central America. The flowers measure about seven inches across, the petals and sepals being of a pale yellow, flushed with lilac-purple and minutely reticulated therewith, as well as covered with small scattered spots of a deep red or purple-brown; the labellum is a dark chocolate-purple, or rich violet. The leaves are a foot long and about four inches in breadth, of a fine green. (*L'Illust. Hort.*, 134.)

68. **Thujopsis dolabrata.** Nat. Ord. *Cupressaceæ.*—This magnificent Conifer was first made known by the works of Thunberg, and afterwards by those of Siebold and Zuccarini. It is a very large tree, of elegant habit, very branchy, with minute leaves. It is to be regretted that none of the above eminent botanists have mentioned the dimensions to which it attains in its native country, Japan, although this is something very considerable It inhabits the chain of central mountains in the island Niphon (the most extensive in the Japanese archipelago), but principally in the moist valleys of the district called Hakon. It is probable that this fine Conifer will prove to be quite hardy with us, or at least in the southern portion of our country.

69. **Lilium tenuifolium.** Nat. Ord. *Liliaceæ.*—The neat little flowers of this plant, about an inch across, render it a worthy object of cultivation, being of the "turn-cap" class, and showy from the brilliance of their scarlet colour; the foliage is small and delicate, and the whole plant possesses a strong odour, though not by any means an unpleasant one. It is perfectly hardy, a native of Dahuria, and more scarce than new. (*L'Illust. Hort.*, 132.)

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NEW AND SELECT GARDEN HYBRIDS.

POTENTILLA PICTURATA.—Mr. Joseph Plant, nurseryman, of Cheadle, one of the most noted growers of *Potentillas*, has raised this very handsome variety. The flower is rather above medium size. The striping of the petals is superior to anything of the sort we have seen before, judging from the specimen submitted to us, and the colours are particularly bright, rich crimson and golden yellow, in about equal proportions; the form and size, although by no means bad, will no doubt be improved when well grown.

17. **Azalea Indica;** *var.* **Grande Duchesse Helene.**—Raised by M. Verschaffelt, of Ghent, and will be sent out in the

autumn. The flower is of medium size, of a delicate, pale rose colour, broadly margined with white; some of the petals have also a small stripe of deeper rose or pink. The foliage is remarkably small, with a wide margin of yellow, which tint also prevails on the under side. It is a very abundant bloomer, and makes a very attractive display in the greenhouse.

18. **New Shrubby Calceolarias.**—Mr. Joseph Plant has raised a very fine white, shrubby variety, which is as woody as any Fuchsia; also seven others, striped and spotted, two of them very large, and all of superior qualities. Mr. Plant has had more success with Shrubby Calceolarias than any other grower we know.

QUESTIONS, ANSWERS, AND REMARKS.

Red Spider in Pits.—Will you, or any of your correspondents, be kind enough to answer *An Old Subscriber*, by stating in your next number what causes the red spider in my melon-pits and in my frames, with its prevention and cure? A reply will greatly oblige.—*Cookham.*—[The red-spider is as one of the plagues of Egypt to many who are fond of their garden, and who, having once got this pest in their plant-houses or frames, know not how to get it out again. The cause of its prevalence will be apparent when we consider that the most effectual remedy is a moist atmosphere combined with heat. When, therefore, the plants are found to begin to be infested, the best thing to do is to take prompt measures for its extermination; let the walls be cleaned and then white-washed with lime and sulphur, using the latter in plenty; sprinkle the plants liberally with water, and syringe the under side of the foliage, where the spider is generally found (for it is an insect that courts the shade), and shut up the lights early, while the sun is on the house or pits, as the case may be. A little perseverance will entirely get rid of the nuisance.—Ed.]

Bind-weed in a Garden.—*A Subscriber* is desirous of knowing whether there is a remedy for the spread of the white Convolvulus bind-weed, where in a rather large garden it has gradually increased, and at length become rapidly destructive. It has already much injured a hedge of Fuchsias, though every endeavour has been made to eradicate it, and my currant and gooseberry bushes are now becoming bound by it with much apparent danger of being ultimately destroyed.—[There is no remedy for it so effectual as forking it out, which should be carefully done, for every little bit under ground will grow. Where it cannot well be forked out the stems should be cut off close to the ground, and attended to to keep it down, and after a time it will die out.—Ed.]

American Aloe in Bloom.—The great American Aloe, in the Regent's Park Botanical Gardens, is now in bloom. Those who are desirous of viewing this floral curiosity should avail themselves of the opportunity, which is not often presented. It is growing in the centre of a very neat flower-garden, and has a fine spike as thick as a man's arm. Beside it is a notice, on which is recorded the daily growth of the spike, together with the temperature of the day, and state of the weather. The average growth is three inches every day.

New Edging for Beds on Grass.—At the Botanical Gardens, Regent's Park, we have seen a new description of edging, for beds cut out in grass, that looks remarkably neat, and is very durable. It is nothing more than a coil of thick rope or cable, painted of a light stone colour, laid inside and close to the margin of the grass. The flexibility of the material enables it to be laid in the windings or angles of beds with the greatest ease, and it has a very excellent effect, especially in a geometrical design. If well painted it will last for years.

CULTURE OF THE GLADIOLUS.—The situation selected is one open to the south, protected on every other aspect, so that the delicate petals are not injured by strong winds. We prefer growing them in masses; thus they make a very showy appearance. When grown in borders with other flowers, we usually plant ten or a dozen in a clump together. About the middle of March the soil is thrown out of the space for the bed, about nine inches deep, a layer of well-rotted dung is spread over the bottom, and pointed in with the under soil; this is covered with about four inches of soil, a sandy loam, and then made even; upon this surface the bulbs are placed singly in rows about eight inches apart every way; a little sand is laid around each bulb, and then the bed is filled in, covering the bulbs about four inches deep. In dry weather, watering the bed freely in the evening is attended to, for if once allowed to shrivel, the flowers soon fade. Care is taken to tie up each plant as it progresses, and nothing can exceed the beauty and interest when in full bloom. The tallest kinds are planted along the centre of the bed, and are so arranged that the blending of the colours may give the most striking contrast, but so that no taller kinds shall conceal the spikes of the dwarfer. Water given over the flowers damages them, and to prevent this a roofed canvas screen is stretched over the bed. These plants bloom from the beginning of June to the end of August. Another bed is planted at the end of April, which comes into bloom about the middle of August, and continues to the end of summer. The bulbs of the first planted bed are taken up early in October, and the others as soon as the foliage is damaged by frost, taking care the roots do not get injured. After taken up, they are kept in the green-house or seed shop, kept dry and from frost till the planting season; then all the lateral bulbs are taken off, and planted singly as before.—*S. & Co.*

BRITISH ORCHIDS, ETC.—Having a small collection of our pretty native orchids, which have always been great favourites with me, I beg to inform your subscribers that I have found no difficulty in flowering them well, notwithstanding the almost universal complaint of their difficult management The chief cause of this appears to be taking up the plants, in the first instance, with too little soil. If the roots be tampered with in the least, they are almost sure to be lost—they cannot bear to have them touched. They should, therefore, always be moved with a large ball of soil. The bed should be under a north wall, and well drained, and attention directed to supply each species with sufficient of its own soil, taken from its native locality, for it to grow in. When once planted I never disturb them, beyond keeping the bed clear of weeds. When the weather is dry and hot I always water them liberally before they bloom, but afterwards in reduced quantity. A few sorts require a boggy place to grow in, which I prepare with sphagnum moss and bog soil in a portion of the border bricked off from the rest. My little collection has been much admired this year.—*F. W.*

THE ROSE IN AUGUST.—This is the best month for budding. Commence with those sorts which have made the earliest growth, and have well matured shoots. Let the stocks be kept in a healthy growing state; never bud from a scion that is not firm and well ripened; tie with cotton, and let the ligature be loosened in about three weeks after budding.—*J. Cranston.*

LARGE EQUISETUMS.—At the last meeting of the Linnæan Society, Dr. Joseph Dalton Hooker read an extract from a letter, mentioning the discovery, near the banks of the Amazon, of large *Equisetums*, the plant found so abundantly in a fossil state in the coal deposits. If not identical with some species of fossil Equisetums, there are many points of resemblance. Every one knows them in our ditches by the name of "horse-tail plants." Fancy some of these of twenty feet growth, with a stem as thick as a man's arm, and you, reader, will have an idea of the appearance presented of these monsters of the Great South American delta. The writer stated that his surprise would not have been greater had he stumbled on a herd of the extinct Megatheriums or Saurians of remote geological periods.

VEGETATION OF BRAZIL.—Near the village of Propiá, on the south of the Rio de Francisco, and seven leagues from Penedo, the most striking objects of vegetation which I observed on the banks of the river, were many trees of considerable size, belonging to the natural order *Leguminosæ*, bearing large spikes of light purple flowers; abundance of a curious kind of *Cactus*, reaching to the height of from twenty to thirty feet, the great fleshy and naked arms of which stand out like the branches of an enormous chandelier. A most striking difference was to be observed between the verdure of that part of the country which, for upwards of four months, had been under water, and the more elevated parts, on which no rain had fallen for nearly six months. The latter had more the appearance of the deciduous woods of Europe in winter, than such as grow within the tropics are generally supposed to present. It was only here and there that a tree was to be seen covered with leaves, all the others having lost their foliage, owing to the excessive and long continued drought. At Traipú, seven leagues further, on the north bank of the river, the effect of the drought on the vegetation was still greater than further down; as far as the eye could reach, nothing like a forest was to be seen, both the hills and valleys being thinly covered with small trees and shrubs, and all, with a few solitary exceptions, denuded of their foliage. On the surface of the ground itself there was no herbaceous vegetation, the red coloured soil alone being seen through the withered bushes. Here and there along the banks a few houses exist, but none were to be observed inland. The only objects that relieve the eye in this desert-like region, were the green bushes which grew along the inundated banks, and the grotesque *Cacti* abounding in dry rocky places. These latter are the most conspicuous objects that meet the eye of a voyager; some of their trunks are of immense thickness, and their branching tops reach to a great height above the surrounding vegetation. These are certainly the most remarkable looking plants of the many which clothe the surface of our globe, their huge fleshy branches seeming more the work of art than of nature. It is only plants such as these that are able to retain their verdure during the long droughts to which the country here is subjected. On the rocky places where these grow, there are also many *Bromeliaceous* plants, which, in spite of the want of rain, not only grow luxuriantly, but produce their large red clusters of flowers in the greatest perfection. The rocks on which these plants vegetate are of gneiss, in thin layers of a dark colour, full of small garnets, and cropping out at a very obtuse angle towards the south. We remained for the night at Traipú, and at nine o'clock next morning resumed our voyage, but as the wind was very high, we could make no way against the current; at about half a league from the place of our departure we were obliged to halt for some hours on the north bank of the river. This afforded me an opportunity of landing, when I made a few additions to my collections. Among these was a species of *Azolla*, which existed in the greatest abundance, in a flat muddy place that was slightly flooded. Here also I met with some of the largest *Cacti* I have ever seen; one in particular was of enormous size, the stem measuring upwards of three feet in circumference, and unbranched to the height of about ten feet; its entire height could not be less than between thirty and forty feet. This and other large kinds of *Cactus* are called by the inhabitants of this part of the country *Sheeke-sheeke*, and their fleshy stems and branches, after being stript of their bark and spines, are roasted and eaten in times of scarcity; under similar circumstances they are given raw to cattle. On the following morning, before breakfast, I took a walk to a high ridge of gneiss rocks, which is at a little distance from the river, and found a variety of different kinds of *Cacti*. One of these was a great *Melocactus* much larger than the one which is so common near Pernambuco; it grows in fissures, of the rock where scarcely any soil exists, and its tough roots penetrate to such a depth, that they can with difficulty be withdrawn; living specimens of this (*Melocactus Hookerianus*, Gardn.), which I sent home, now exist in the collections at Kew and Glasgow.—*Gardner's Travels in Brazil.*

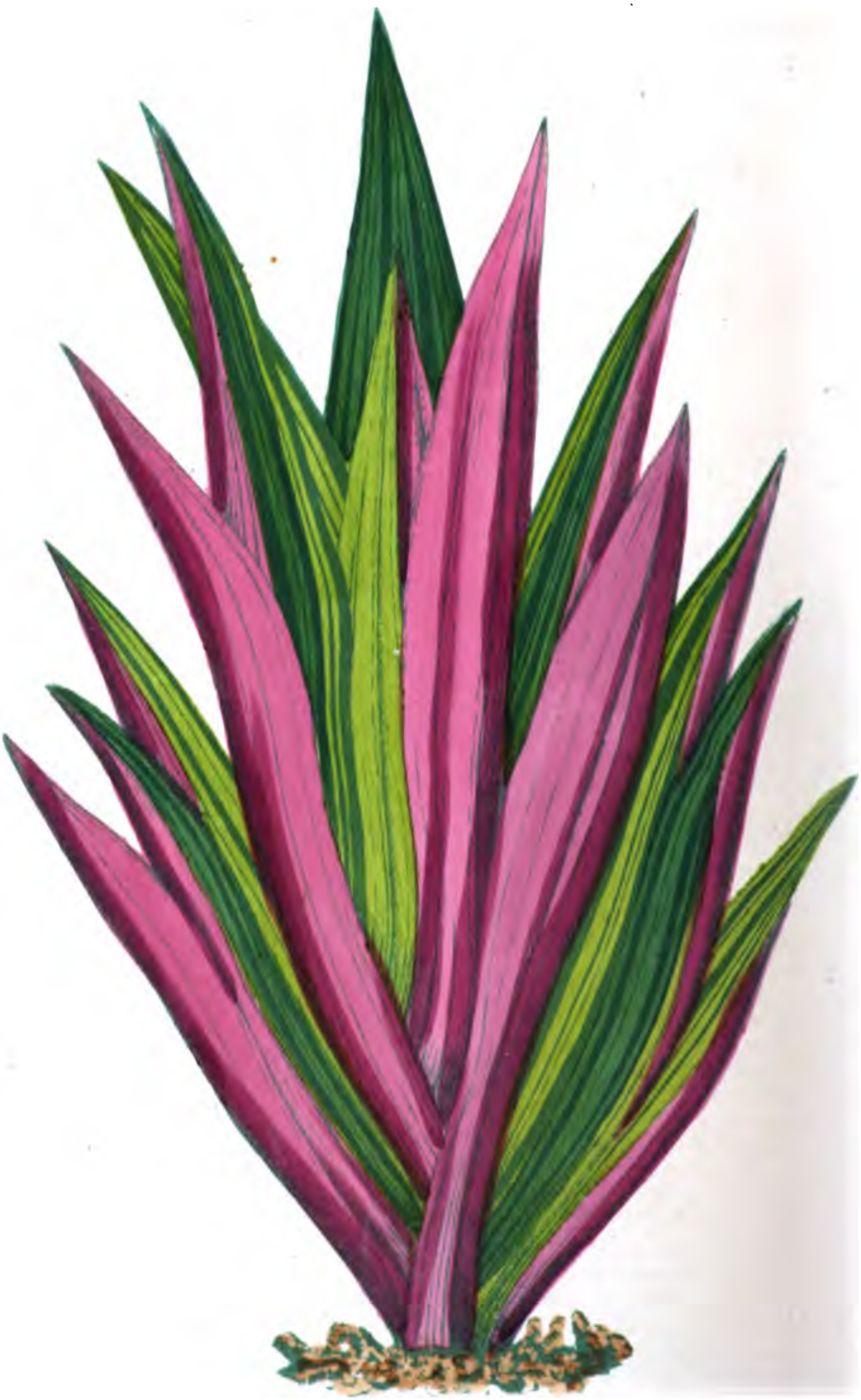
APONOGETON DISTACHYON.—Three years ago I became possessed of a small root of this scarce plant, which I planted in a pot, and sank in a pond; it grew rapidly, and has since flowered very freely. It is a native of the Cape of Good Hope, and should be grown by every one who can accommodate it, as the white blossoms are very sweet scented, besides being singularly curious. It is a perfectly hardy aquatic, and seeds so freely that I have had to pull some of the plants away to prevent its spreading too far. The leaves are of a very pleasing green, about a foot and a-half long, floating on the surface. It blossoms throughout the summer months.—*T. K. S.*

OBITUARY NOTICE.—We regret to announce the death of Mrs. Loudon, relict of the late J. C. Loudon, author of the "Encyclopædia of Gardening," and many other valuable works, as well as for some years editor of the "Gardener's Magazine." The deceased lady was herself the authoress of several popular works connected with gardening.

Biography of a Celebrated French Naturalist.—A letter from Monte Video, of May 29, brings intelligence of the death of a remarkable Frenchman, M. Aimé Bonpland, the naturalist, who died a few days previously at San Borja, at the age of 85. M. Bonpland was born at Rochelle in 1773. He was the son of a physician, and was brought up to his father's profession, but the political events of the early republic compelled him to enter the navy. He made a long cruise as a naval surgeon, but took the earliest opportunity of returning to Paris to pursue his studies. There, at the house of M. Corvisart, he made the acquaintance of a young German of about his own age, who afterwards became known to the world as the celebrated Alexander von Humboldt. These young men became intimate friends, and when M. von Humboldt undertook his expedition to the equinoctial regions of the new world, M. Bonpland accompanied him. During this journey M. Bonpland collected and classed upwards of six thousand plants, which were then unknown to botanical writers. On his return to France he presented his collection to the Museum of Natural History, and received the thanks of Napoleon I., who granted him a pension. The Empress Josephine was very fond of Bonpland; she made him her factor at Malmaison, and often sowed in her garden there flower-seeds which he had brought from the tropics. After the abdication at Fontainebleau, M. Bonpland urged the Emperor to retire to Mexico to observe events. A few weeks after tendering this fruitless advice, he sat by the death-bed of Josephine, and heard her last words. Her death and the definitive fall of the empire leaving him nothing to desire in France, he returned to South America, and became a professor of natural history at Buenos Ayres. Subsequently he travelled across the Pampas, the provinces of Santa Fé, Chaco, and Bolivia, and penetrated to the foot of the Andes. Being there taken for a spy, he was arrested by the governor of Paraguay, and was detained a prisoner for eight years, till 1829. On his release he directed his steps towards the Brazils, and settled at San Borja, where, in a charming but humble retreat, surrounded by orange groves and European shrubs, he remained to the day of his death, receiving with pleasure all French travellers who visited him. He was the author of (among other works) "Les Plantes Equinoxiales" (1805), "La Monographie des Melastomas (1806), "Description des Plantes rares et de la Malmaison" (1813), "Vue des Cordilleres et des Monuments Indigenes de l'Amerique" (1819), and (jointly with M. de Humboldt) "Voyage aux Regions Equinoxiales du Nouveau Continent."

Heterotropa asaroides.—This is a singular plant, a native of Japan, and deserves a place as a vegetable curiosity alone, for it is possessed of no beauty. It is perennial, of evergreen habit, growing six inches high; two or three leaves spring from the crown, and at the base of the leaves the flowers appear about as big as a wall-nut; they consist of spheroidal tubes of a purple colour, and look like small birds nests. It may be kept in a pot, and during winter merely requires the protection of a frame.—*T. K. S.*

Linnæan Society.—At a recent meeting of this learned body, two letters were read "On the Vegetation of Angola," by Dr. F. Welwitsch, addressed to W. W. Saunders, Esq. The writer mentions that during the first year of his residence in tropical Africa, he investigated the botany of the coast district from the Anizembo River, north of Ambriz, as far as the mouth of the Coanza. He afterwards spent two years in the mountain regions of Cazengo and Golungo-alto, where some of the peaks rise to more than 2000 feet, and in this region found above 300 species of trees, and more than 400 species of climbing plants, the ground being covered with a luxuriant growth of upwards of 60 species of Ferns, some of them arborescent. Here was the *Monodora myristica*, one of the most gigantic and splendid forest trees of tropical Africa. Terrestrial and parasitical Orchids were tolerably abundant: one of the former, apparently a *Lissochilus*, having broad leaves nearly 5 feet long, and a flower-stem of 10-12 feet high, bearing a spike of from 20 to 25 large rose-coloured flowers. This letter was dated September, 1857. In the other letter, dated February, 1858, containing many details of the vegetation of Golungo, Dr. Welwitsch stated that he had penetrated in a direct line about two hundred and fifty geographical miles into the interior.



The Floricultural Cabinet.

SEPTEMBER, 1858.

ILLUSTRATION.

TRADESCANTIA DISCOLOR, *var.* VITTATA.

PLANTS with ornamental foliage being now so deservedly popular, we have the less hesitation in departing from our general plan of figuring a handsome flower; and this more especially as the subject of our present plate is certainly as striking in this respect as any plant of the class to which we refer.

Tradescantia discolor, var. *vittata*, made its first appearance a year or two ago in Holland, in the possession of M. W. Steen, but from whence he received it we have no certain knowledge. The type of the species, *T. discolor*, is, however, a native of the West Indies, and although a very attractive plant, is much inferior in beauty to the present. The leaves, measuring from eighteen inches to two feet in length, are, on the superior surface, striped with yellow and light and dark green, whilst beneath the prevailing tints are various shades of crimson and red, which in the young state, and grown near the glass, are particularly bright. The flowers are possessed of little beauty, being simply small white ones. They are, however, furnished with large crimson bracts, which in some degree make up for the insignificance of the bloom.

Its culture may be summed up in two or three words: *light*, *heat*, and *moisture*. As regards the first, the beauty of the colouring depends principally upon its being grown in a place in the stove where it may have abundant light; if placed under the shade of creepers, the colours will be found to be much paler than when fully exposed to the sun; heat and a moist atmosphere are also essential to growing it well. It may be easily propagated by means of offsets or suckers, and deserves to have a place in every moist stove.

ON STRIKING SHRUBBY CALCEOLARIAS, AND PRESERVING THEM THROUGH THE WINTER.

BY A NOBLEMAN'S FLOWER GARDENER.

AMATEURS, and others who are not in possession of a greenhouse or pits, are not generally aware, perhaps, how they may strike and preserve through the winter hundreds of the beautiful bedding Calceolarias, at very little expense or trouble, and without having recourse to erections of any kind. I will point out my plan, which I have for some time successfully adopted, in the hope that it may be of service to some reader of your useful pages. By my method I seldom lose a single cutting. About the middle of October, I prepare a border under a sheltered wall, where the plants may have little or no sun, preferring the north-east exposure, if such a situation be available. The soil should be light and sandy, with about half an inch of coarse sand at top. Take off your cuttings, preferring hard, short-jointed stuff, and then dibble them in pretty close together; when put in give them a good watering, and, when the soil is dry, cover them with hand-glasses. Of course, when put in, it is proper to observe that the spaces allotted to the cuttings may each be covered with a hand-glass, leaving a sufficient margin around them so that they may not touch the sides. It is of no great consequence how closely they are put in, only the wider they are, the better rooted they will be. This matter will be limited by the ground to be occupied, and the number required. I have had as many as thirty hand-glasses the last winter, and early in spring have had some thousands of nicely rooted cuttings. Should the weather be very damp at any time, air is essentially necessary. They are not injured by a little frost, so long as the sun is kept off. I give very little, or no water through winter, and that in fine weather, so as to allow of the glasses being left off until the water has drained away, as this is a great means of preventing damp. If preferred, the cuttings may be put in large pots, boxes, or pans, though these should be sunk in the border. Early in February I take them up, and pot them into thumbs, or small sixties, according to the strength of the young plants, and place them in a frame, giving them a good watering. As soon as the pots are well filled with roots, I take them out, and put in six inches of good loam and sand, turning the plants into it, four or five inches apart. They root rapidly, and much better than in pots. A frame is not absolutely necessary however, as they may be put into a border where they can have the afternoon sun, and until the end of March I keep hand-glasses over them, giving them as much air as possible.

By this means, any one who has a few hand-glasses, or hand-lights, may grow sufficient of these charming bedding-out plants for his garden, and with much less expense or trouble than would be required even in a greenhouse.

RECENT IMPROVEMENTS IN HORTICULTURAL APPARATUS, IMPLEMENTS, AND MANUFACTURES.

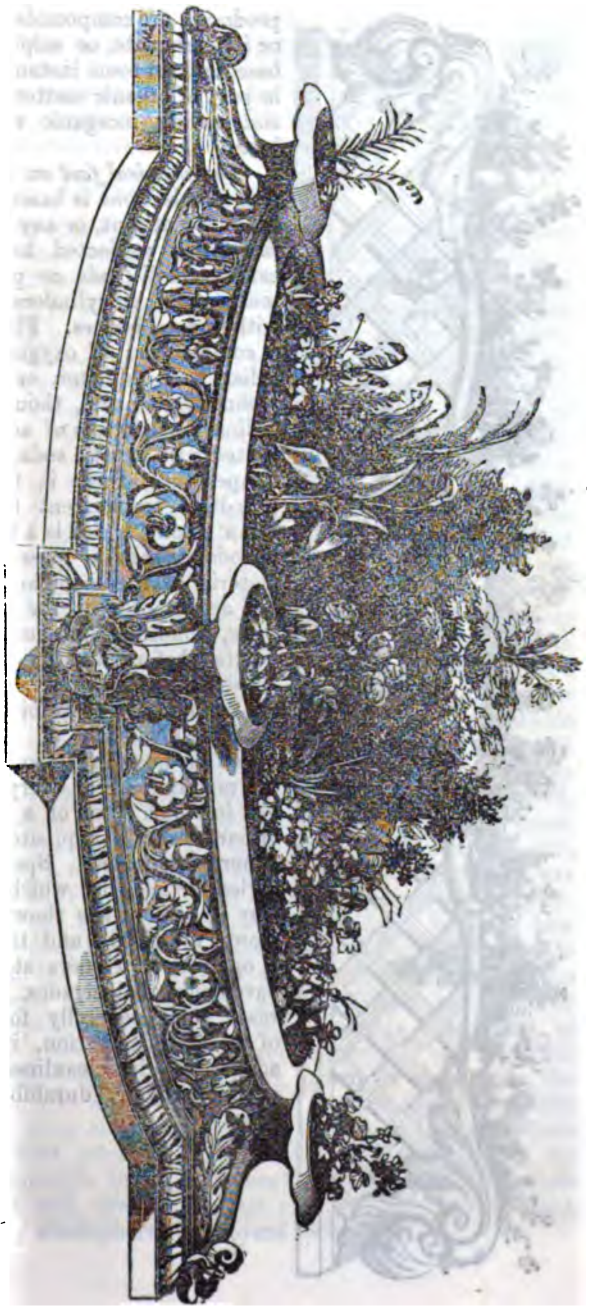
(*Continued from page* 208.)

ANY improvement in the manufacture of works in artificial stone may be viewed as a boon to the proprietor of a garden. The materials hitherto used in the construction of vases, urns, pedestals, and other garden ornaments have never fully answered, being all more or less liable to injury from moisture, frost, and other sources. In consequence of the expense in renewing such articles of decoration, when destroyed or unfit for use, iron has been extensively substituted; but the objection raised on the score of expense is further increased by the fact, that iron articles never look so well as receptacles for plants as those made of stone, or of a composition that looks like natural stone. Mr. Ransome, of Ipswich, has happily succeeded in inventing an artificial stone of extreme durability, open to none of the foregoing objections, and of which we have seen some exquisite designs formed for garden ornaments. Of late years, and especially since the period of the Great Exhibition of 1851, several gentlemen directed their attention to the improvement of artificial stone, and with more or less success. It was, however, reserved to Mr. Ransome to be completely successful. When we say that Mr. Ransome's plan and his process of manufacture is entirely distinct from all processes which have gone before, we only add another claim to the many which Mr. Ransome has established to the thanks of the community, and to the deserved honours which have been paid to his invention by the most eminent scientific authorities of the day. Professor Ansted, Mr. Henry, Dr. Garrod, the late Dr. Buckland, Sir H. de la Beche, and

Dr. Faraday, are amongst the numerous notabilities who have certified in public and private to the merits of the process, which promises to achieve a wonderful economy by its durability, and in the saving of labour for decorative purposes, as well as in the more substantial utility of domestic appliances. (*See Cuts.*)

Mr. Ransome's artificial stone is composed of a mixture of flint, sand, clay, and alkaline solution of flint, of which the proportions may be thus given:—10 parts of sand, 1 part of powdered flint, 1 part of clay, and 1 part of the alkaline solution of flint. These ingredients are first well mixed in a pug-mill, and kneaded until they are thoroughly incorporated, and the whole mass becomes of a perfectly uniform consistency. When thus worked up, the compound forms a putty-like substance, which can be moulded into any required form, and is capable of receiving very sharp and delicate impressions.

To produce different kinds of artificial stone, adapted to the various purposes to which natural stones are usually applied, both the proportions and the character of the ingredients are varied as circumstances require. Any degree of hardness or porosity may also be given, by varying the quantity of silicate employed, and subjecting it to a greater or less degree of heat. For some description of goods a portion of clay is mixed with the sand and other ingredients, for the double purpose of enabling the material to stand up during the process of firing in the kiln, and to prevent its getting too much glazed on the surface.



The prominent feature which distinguishes this from other artificial stones, consists in the employment of silica, both as the base and the combining material. Most of the varieties of artificial stones hitherto

produced are compounds, of which lime, or its carbonate, or sulphate, forms the base, and, in some instances, they consist in part of organic matter as the cement; and having inorganic matters as the base.

The chemical fact on which the invention of this stone is based is the perfect solubility of flint, or any siliceous material, when subjected to the action of caustic alkali (soda or potash), at high temperature, in cylinders communicating with steam boilers. Flint, or silica, is a combination of oxygen gas with a peculiar base (silicium or silicon), and is technically an acid, though without the ordinary properties of acids. On being heated with caustic soda, at a very high temperature, there is formed a thick, jelly-like, transparent fluid, of a pale straw colour, which is a hydrated silicate of soda, or soluble glass, the cementing material of the manufacture, which, by the action of heat for several days in kilns, solidifies and encases the ingredients (before mentioned) in a glassy substance.

Such is the extraordinary character of this invention of Mr. Ransome's, which is now in active application to the manufacture of every variety of object in which stone of a uniform degree of hardness is a requisite, as well as to general purposes. Specimens of the varied articles to which it is applied may be seen at the show-rooms, Cannon Row, Whitehall, and the manufactory is open to all comers at Ipswich. For pavements, balustrades, terrace works, vases, and generally for all purposes of garden decoration, it is admirably adapted by its cleanliness, sharpness of outline, colour, durability, and cheapness.

OBSERVATIONS ON THE VEGETATION OF ALGIERS,

WITH REFERENCE TO THE CULTURE OF SUCCULENT AND BULBOUS PLANTS. BY M. COLLET. BEING THE SUBSTANCE OF A PAPER READ BEFORE THE HORTICULTURAL SOCIETY OF THE AUBE.

(*Translated by the Editor.*)

THE following observations, together with the conclusions drawn therefrom, were suggested to me whilst exploring a small portion of the territory south of Algiers, during my visit to that interesting country in the year 1853. Although the remarks I am about to make may have no more than a common interest, they indicate, perhaps, some modifications to be brought to bear on the cultivation of certain plants of a succulent and bulbous nature. Let us for a short time consider ourselves transported some miles to the south of the city of Algiers, and look at the character of the soil. A ferruginous clay, more or less mixed with sand in places, reposes on a calcareous rock; and this forms the arable soil of the very undulating zone which separates Algiers from the marshy valley called by the Arabs "Mitidja." When, after the rainy season, the sun has darted its burning and almost vertical rays through a pure and serene sky for six months, and the simoom has, from time to time, during the same period, borne from the more southern deserts its powdery, sandy blasts, and absorbing breath, this clayey, sandy soil is burnt almost to the hardness and consistency of a brick from the furnace, so inexpressibly hard and dry is it, more so indeed than any one but an inhabitant can conceive. The year 1853, when I was there, was remarkable for its dryness throughout the whole of Algeria. From the month of February to December, there had fallen only some two or three tenths of an inch of rain! During this period, I one day endeavoured, by the aid of a strong knife, to extract a bulb of *Scilla maritima*, scarcely covered with soil, from the ground, yet, before I had succeeded in removing a trifle of soil as large as a walnut, the blade was broken! Such is the character of the soil in which these plants grow. I cite the fact, trivial, but not insignificant in itself, to show how little suited, according to our theoretical views, and how unfavourable the soil appears to be for the growth and development of bulbous plants, which would seem to require a light, friable soil for their successful cultivation. Here, however, nature is completely at variance with our preconceived views and opinions. On the little hills of Algeria, dried up, and, as it were, baked for six months, the observer is struck with astonishment at the luxuriance and quantity of the bulbs, and other succulent forms of vegetation that arise from the hard and almost calcined clay—plants that seem to defy the furnace that surrounds them, and shoot out on every side their numerous leaves and offsets, gigantic as these are in some cases, into the fierce dry atmosphere that covers them.

I have already spoken of the *Scilla maritima*. This beautiful Liliaceous plant has often been found by me, not only in the vicinity of *the sea*, as its name would indicate, but quite as frequently many miles inland. Indeed, the most beautiful specimens that I have met with grow on the steep slopes of the hills, where their enormous bulbs are only partially covered with the soil. One day I plucked up a group of three of these bulbs, of almost equal size, the least of which was not less than four inches across, and whose long, elegant spikes of flowers measured a yard and a half in height! Many kinds of *Narcissi*, the white, yellow, and many-flowered, arise also from this hard clay, along with modest *Ornithogalums* and branching *Asphodels*, the latter a plant very common in this district, and of which the numerous tubercles have recently furnished to commerce so plentiful a supply of alcohol. That which surprised me most however, in my travels in Algeria, was to find on the summits of the dryest hills, and in the midst of brooms and heaths, dwarf palms, etc. (which plants always cover the most arid and uncultivated parts of the country), a small variety of *Colchicum*, having the greatest resemblance to the *autumnal Crocus* of our own meadows, but often very dwarf. This plant grows most commonly along the little bye-paths which lead to the *Gourbies*, or Arab huts, so lost in these thickets of compressed soil and vegetation, that I have been frequently compelled to ask myself how it is that the delicate stalks and embryo blossoms of these plants could pierce this ground, whose consistence can only be compared to the rock which supports it!

I have alluded to the dwarf palm, so common there (*Chamerops humilis*), the depth and breadth of whose roots are a continued source of trouble to the husbandman to grub up. Under the shade of its prickly fans, and always in the driest places, grows a *Cyclamen*, which I take to be the *C. microphyllum*, whose black, flat tubers, can only be compared to large potatoes. The pretty flowers of this Primulaceous plant, borne on their long peduncles, beneath the spreading leaves of this dwarf palm, which shades the soil, seem to seek the sun, and cast defiance at his fiercest rays. Another thing which particularly strikes the inhabitant of a more northern climate is, the sight of vast and inextricable thickets of *Opuntias* of different species, which border upon the habitations of the natives, and whose fruit furnish, during a part of the year, an abundant and salubrious nourishment. Near the village of Birkadem I have seen the trunks of *Optunias* that measured not less than eighteen inches in diameter, and whose vast arms raise themselves more than twelve or fourteen feet from the surface of the soil. There is also the gigantic American *Agave*, which, I know not why, is called here by the name of "Son of the Aloes," and whose leaf furnishes those textile fibres known as "Aloe yarn." The *Agave* does not, however, grow spontaneously in Algeria It is planted in rows along the entire length of fields, where its fleshy leaves, armed with formidable spines, and terminated by needle points as hard as steel, form a close fence, which it is dangerous to attempt to get over. It is only grown as a fence where the ground is valuable, and it is an object to keep out intruders. This plant may be appropriately called the giant of succulent vegetables. Its thick leaves, so full of fleshy substance, form an ample tuft, where, for some months, it raises majestically a spike, perfectly straight, from four to six yards in height, and from one inch to one and a half in thickness at the base, and whose upper portion bears horizontal peduncles, giving it the aspect of a splendid candelabrum. I have measured leaves more than nine feet and a half in length, and it requires a strong man to carry a couple of these. All these plants, naturally so vigorous, grow there in the greatest luxuriance, without other care than that which is bestowed on them by nature. No one moves the soil at their feet, and no one moistens it, not even nature! In the constitution of the plant itself, it is difficult to find the source which not only sustains them against the torrid heats of the climate, but makes them push forth so vigorously, in spite of the heat and dryness of the soil. We cannot admit that the stalks, tubercles, or bulbs of such plants, more especially of *Opuntias* and *Agaves*, absorb, during the rainy season and the early months which follow, when alone dew is perceptible, a sufficient quantity of sap to maintain vegetation and rapid growth during the dry season; to store up in the numerous cells of their vegetable tissues a sufficient quantity of nourishment to keep them alive, let alone to develop themselves, when there is a scarcity of water both in the air and in the soil. Let us not forget, however, that the epidermis which covers the exterior parts of these plants is perfectly smooth, and that the polish of the surfaces is an obstacle to the absorption of the calorific, or heating rays, and consequently, also, to the evaporation of the liquids enclosed under those surfaces. Again, we cannot but admit that the bed of hard clay which envelopes the fleshy and fibrous roots of such plants as I have already alluded to, is an obstacle to the evaporation of the moisture of these roots, and that a light, dry soil would absorb this humidity to the detriment of the plants, whilst a stiff, compact soil would tend to preserve it.

When we transport a plant from its native locality, and attempt to cultivate one which hitherto has been abandoned to nature—that intelligent mother, who so well knows how to suit the organization of all her creatures to the circumstances in the midst of which they must live; when, I say, we transplant it under different circumstances as regards climate, and the conditions under which it has grown, the first thing we have to do is to place it as much as possibly we can, by artificial means, in similar conditions to those by which it has been surrounded by nature. These considerations, combined with the observations it has been my fortune to make, have led me to think that, for the most part, for bulbous and tuberous plants, and the succulents that are natives of *dry countries*, as *Cacti*, *Agaves*, *Aloes*, etc., a compact clayey soil will be found *far preferable* for their growth than light soils, peat, and the other compounds that are now generally employed for their cultivation. Under the treatment of such plants in light soils, it is evident that, unless these soils are kept in a constant state of moisture during the period of growth, by means of oft repeated waterings, they will never flower well, and that then the plant will not be in circumstances natural to it in a dry climate. Farther, if these waterings are neglected, the light soil, too often sandy and very porous, will absorb the humidity of the plant and weaken it. I submit the foregoing observations to practical gardeners, without any other intention than to put forth a few ideas that appear to me to be rational, but the wisdom of which experience can alone serve to confirm or establish. Nevertheless it appears that the experiment is worthy of a trial.

CRYSTAL PALACE; AUGUST.

A VISITOR to the Palace and grounds this month could not fail to be struck with the great beauty, as well as health and vigour, of the climbers and other plants trained along the conservative wall in the collonade leading to and from the railway station. It may not be amiss to devote a short space to a description of the plants that cover the immense surface of this long trellised wall; the plants being placed at regular distances of four feet apart.

To commence—*Tea Roses*, *Scarlet Geraniums*, *Maurandias*, *Cobœas*, *Heliotropes*, and *Fuchsias* are repeated at intervals, and are for the most part exceeding healthy and well grown, the Fuchsias especially so; *Serratifolia* appears the best for climbing, and may be had in bloom nearly all the year round. Of other plants there are the following:—*Magnolia grandiflora*, *Bignonia radicans* *Tecoma capensis*, a fine specimen; *Acacia lophantha*, a very favourite variety, for its beautiful foliage; *Ceanothus dentatus*, looking better than we ever remember to have seen it; white *Azaleas*, *Bignonia capreolata*, a very hardy sort, which will do out of doors in a warm corner; *Jasminum affine*, a pretty, free-blooming, white species; *Fuchsia fulgens*, some fine plants; *Physianthus albicans*, *Tropœolums*, several varieties; *Lardizabala biternata*, a purple-flowered climber, with handsome shining dark green leaves; it does well here, and indeed we believe it is sufficiently hardy for out-of-door training; *Veronica speciosa*, *Petunias*, *Pomegranates*, *Oranges*, the winter blooming *Fuchsia Dominiana*, *Escallonia macrantha*, *Billardiera longiflora*, bearing small, deep purple fruit, with handsome foliage; *Ceanothus papillosus*, one of the best for a wall; *Daphne Indica rubra*, a very sweet scented sort; a new *Magnolia* from the Continent, named *Alexandrina; Dolichos lignosus*, an old plant, tall and rampant in growth, with purple blossoms; *Rhynchospermum Jasminoides*, covered with its pretty white blossoms; it is a rapid grower, and will soon occupy a large extent of wall; *Stauntonia latifolia*, a handsome-leaved climber, not so much grown as it deserves; *Datura arborea*, *Clematis Shellengii*, a white flowered variety; *Tacsonia manicata*, grown almost beyond bounds, and, as every one knows, very handsome; *Cantua dependens*, which does well here, apparently; *Passiflora palmata*, *Jasminum grandiflorum*, *Solanum Jasminoides*, one of the neatest of evergreen climbers, and of rapid growth; *Podocarpus pungens*, a curious plant, with heath-like leaves; *Chimonanthus grandiflorus*, very fragrant; *Acacia dolabriformis*, a rapid grower, which is excellently adapted for training. A variety of *Rhododendrons* are trained at intervals, which made a good show earlier in the season. The border in which these plants are growing is kept clear of anything else, and by a little constant attention in the growing season, the plants are kept in the finest condition, and are alone worthy of a journey to Sydenham to view them.

Out of doors the bedding plants were quite a picture to behold; the arrangement of colours appeared to be even better than usual. On the terraces were beds of scarlet *Geraniums*, edged with deep purple *Verbenas; scarlets*, edged with *variegated Geraniums;* others with white *Alyssum*, and *Tropæolum Lobbianum* surrounded by dwarf blue *Lobelias*. Around the Rose garden were beds of the following:—Shrubland Rose *Petunia*, with *white zonale Geranium* in the centre; yellow *Calceolarias*, with scarlet *Geraniums* in the centre; rose *Verbenas* with purple *Petunias;* deep violet *Verbenas* surrounding Flower of the Day *Geranium*, very good; and Princess Alice rose *Geranium*, with a border of white *Verbenas;* also good beds of *Tropæolum Lobbianum*, or a variety of that species, and large purple *Petunias*. Dwarf blue *Larkspurs*, edged with scarlet *Geraniums*, looked well, as also beds of *Hydrangeas* pegged down, and surrounding purple *Petunias;* scarlets, edged with Mangles' variegated pink *Geranium; Cuphea platycentra* with scarlet *Verbenas; Phlox Drummondii*, crimson, with a border of white *Verbenas*. The slopes of the Rose garden were covered with plants in splendid bloom, planted in the ribbon fashion, with white *Petunias*, scarlet *Geraniums*, yellow *Calceolarias*, and violet-coloured *Verbenas;* again, purple *Petunias*, scarlet *Geraniums*, orange *Calceolarias*, and blue *Verbenas*, which had a happy effect. Inside the Rose garden was a bed of deep purple *Petunias*, then a ring of scarlet *Geraniums*, the whole edged with white *Alyssum;* this looked very well indeed. Another bed was planted with scarlet *Geraniums* in the centre, then purple *Verbenas*, edged also with white *Alyssum;* but the following arrangement was extremely good—yellow *Calceolaria* in the centre, surrounded by scarlet *Geraniums*, and edged with Mangles' variegated pink variety.

* * *

ON THE MANAGEMENT OF ORCHIDEOUS EPIPHYTES.

BY CLERICUS.

PLANTS thus designated, strictly speaking, are those only which are found growing on the branches or trunks of trees in their native localities, whereby their roots are exposed to the air, and such only can properly be termed "air plants."

In cultivation, however, it is difficult to draw a line of separation between true air plants (Epiphytes) and certain terrestial Orchids of the tropics, as it is by no means an unusual circumstance for some of the former to grow as well or better in soil than on blocks, and again some species that grow naturally on rocks flourish best in our stoves when placed on branches. All true Epiphytes, that are such in a state of nature, growing on trees in dense forests, have their roots hanging down in shade and in an atmosphere of excessive moisture. In cultivation these do best when suspended in baskets, husks of cocoa-nuts, partly filled with moss, or tied on pieces of wood from the rafters of a damp stove, in the most shady part of the house. This rule, though apparently so reasonable, is not without its exceptions in practice, and this is probably caused by the difficulty which arises in following exactly the natural conditions of the plants. For example, the *Epidendrums* and *Dendrobiums* of the West Indian Islands, though always found inhabiting trees, flourish best when planted in turfy peat and chopped moss. The blossoms of Dendrobes are mostly produced in long, pendant racemes, and those of Epidendrums in erect spikes, like those of Oncidiums. The greater part of the East Indian species require to be grown on wood, particularly the *Vandas* and varieties of *Sarcanthus*. *Stanhopeas* and *Catasetums* should be grown in baskets of moss, or in pots suspended from the rafters, as their flowers proceed from the roots and hang down; but the *Cattleyas*, which have erect flower stems, are always grown in pots. Sometimes it is not convenient to have suspended pots, and in that case *Stanhopeas* may do well on a pile, composed of pieces of turfy peat, raised six inches above the rim of the pot, and the pseudo-bulbs must be placed on the top; as unless this is done, the flower stem, when protruded from the root, will bury itself in the earth contained in the pot, and the flowers will be unable to expand, though they will easily make their way through the loose pieces of turf composing the pile on which they are planted. When this method of potting is adopted, slender pieces of wood or stiff wires, are passed through the pile to keep the pieces in their places. The *Catasetums* grow in open parts of the woods of the tropical regions of South America; they all require great heat and abundant moisture, and when grown on wood it should be on that of soft barked trees.

Various expedients have been resorted to in order to produce the shade required for the successful growth of some Orchids.

In certain cases the house has been glazed with dark green, or brownish glass, double sashes have been used, and creepers trained over the roof. None of these plans, however, have proved perfectly successful; for, though the plants thus treated have grown rapidly, it has been to produce leaves rather than flowers. Whether it be that the plants in an artificial state require more light than in their native woods, or whether the power of the sun in our climate is so much more feeble than that they have been accustomed to, as to render shading unnecessary, it is certain that the Orchideous Epiphytes in this country require plenty of light, and that they never flower well if kept in comparative darkness.

There has been some little dispute among cultivators as to what descriptions of wood were best for those Orchids that grow on branches. I believe nothing is so suitable as the *Robinia pseudo-acacia*, which possesses the quality of a rough bark, and much durability; it must be observed, however, that in nature these Epiphytes are never found growing on dead wood. When placed on the branch or log, plenty of sphagnum moss is almost essential for their prosperity, although some recommend living plants of *Lycopodium stoloniferum*, which certainly possesses the advantage of looking better, and retains moisture almost equally well.

When Orchids are grown in baskets, the latter should be made of copper wire, or if of iron they should be painted to preserve them from corrosion. They should be formed with the bars sufficiently wide apart to allow the flower stems of the *Stanhopeas* and other plants sending out their flower stems from their roots, to push their way through. The baskets for these and other root-flowering plants should be from three to six inches deep, and from six to ten inches wide; and they should be filled with moss or with strips of turf two or three inches wide, and placed on end round the inside of the basket, so as to stand nearly upright, with a large flat piece in the centre. The plant should be placed in the middle, and the basket filled up with broken pieces of turf, mixed with crocks or cinders, if the plant be very delicate, and easily affected by too much moisture. These baskets are very convenient for Orchids, as they may either be suspended from the roof, or placed on an inverted pot; or if the plant requires bottom-heat, the basket may be placed on the surface of a pot plunged in the hot-bed. The basket also looks better and more elegant when the plant is in flower, and is wanted for indoor decoration.

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SIX BEST HARDY SHRUBS FOR EXHIBITION.

BY G. GLENNY.

THIS kind of collection is common at exhibitions, and will become more so; therefore will a few words of advice to every exhibitor be useful. Of the many thousand plants which might claim attention in this department, the six which shall be called the best, must indeed have some pretensions. But the very fact of choosing six, presupposes they are to be shown in pots, and therefore should be worthy of a place among the plants of manageable size. It would be out of all character to take the Wisteria Sinensis, which will run twenty-five feet in a season, and which could hardly be induced to flower in a pot well enough to form an apology for its thousands of blooms in the open ground. No; we are confined in our choice to six hardy plants, such as we could produce on a show table in ordinary flower-pots. We require all the good qualities we can get in a plant, but when we cannot get all we want, we must be content with all we can get. First and foremost we must place the Rose, handsome and odoriferous; next the Honeysuckle; then Magnolia; then follow Rhododendron, Lilac, and Deutzia; Andromeda and Azalea. To begin with the Rose, the king or queen of flowers; there is hardly a plant that can be said to come near it. The gracefulness of its growth, the splendour of its bloom, the richness of its fragrance, all assist to place it (alone indeed, for its fragrance never leaves it) far before all other odoriferous plants. Whether we take the Moss, the Cabbage, the Maiden's Blush, or any of the more delicate or more gaudy varieties that the late years have produced, there is nothing to come near the Rose; and in selecting for show, the choice would only be between the colours, the other five plants you mean to show having some reference to the choice; thus if we had a white Rhododendron, a white Lilac, or a white Magnolia, we should unquestionably take either the Moss, or Cabbage, or some coloured Rose. The Honeysuckle presents us but few varieties, but the Dwarf Dutch is the most appropriate for a pot, and may be grown less than two feet high, covered with bloom. The Magnolia offers a choice; Conspicua has a white bloom, Purpurea a purple one; both are handsome, both bloom abundantly on small plants, and it is better to have both in growth, that you may adapt the colour to the rest of the plants. Lilac is an old-fashioned but elegant plant, and the small-leaved varieties give the choice of colour, white and lilac; you should grow both, that both may be ready. Rhododendrons afford a great choice; Catawbiense is the richest of all the very hardy kinds, and the most varied. If our readers take a walk to Messrs. Rollisson's of Tooting, they may select from the stock some of all colours—deep purple, light purple, lilac, and almost white; and there are many hardy hybrids which would increase the choice; as one only will be wanted in the half-dozen hardy plants, a few will do to choose from. Deutzia scabra is a delicate and pretty growing shrub, whose bunches of white blossoms make a very fine appearance all over the plant. Besides the six genera we have mentioned, the Azalea, which we should be loth to risk showing with the Rhododendron, gives other chances of season and colour. Pontica major is yellow, Coccina major is red, Aurantia major is orange colour, and either of these might give an extra brilliance to half-a-dozen; still they should be grown as of the same genera with Rhododendron, and not be both shown in the six plants. Then we have some of the novel Clematises affirmed to be hardy, but we do not wish to see a more unequivocal, safe, brilliant and interesting half-dozen, than could be supplied out of—A variety of handsome Roses. Siberian and Persian Lilacs. Dutch and other Honeysuckles. Catawbiense and hybrid Rhododendrons, Azaleas, etc. Magnolia Conspicua and Purpurea, etc. Deutzia scabra, and Andromeda floribunda.

They require very little culture; take them up carefully, give them pot-room in loam, leaf-mould and peat in equal quantities, and forward or retard them according to the season you want them: nothing can go by half-a-dozen handsome ones well bloomed; at all events, anybody might have the field against our favourites.

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GLEANINGS AMONG THE SAXIFRAGAS.

BY MR. WM. HOLCROFT, UPHOLLAND.

SAXIFRAGAS compose a very extensive genus of dwarf ornamental plants, suitable for almost any soil or situation; indeed, I have yet to find a soil in which some one or other of the species of this extensive genus will not grow. The greater portion of them however dislike clayey soils, as being too retentive of wet in winter; in summer many of the species will flourish all the better for a liberal supply of water, provided that it drains off well. How many places do we not see on the front of borders vacant, where some one of this genus would display its beauty to the greatest advantage. How many vacant places there are on the rockery, where, if the owner would but plant one of this family, and leave it untouched for twelve months, he would be astonished at its beauty. Yet with all these advantages, and I feel persuaded they are no inconsiderable ones, few of this delightful family are found in the rockeries and borders of the wealthy, or even in the garden of the amateur; a fact for which I am unable to account.

Look at the beautiful flowers of this genus—they possess a beauty of their own, and one that no other genus can claim so well as they; moderate in growth, beautiful in flower, compact in habit, what more could the most fastidious desire? The foliage too, except in *crassifolia*, *ligulata*, *ciliata*, and another or two, is a nice size, variable in form. Some with beautiful crustaceous edges, as in *cotyledon*, *aizoon*, and some others; some again form a beautiful cushion-like tuft, as in *hypnoides;* some send out beautiful filiform stolons, as in *flagellaris:* in fact, this one genus furnishes almost all forms of leaves. And this is no wonder, since the species of this genus fall little, if any, short of 200, besides an immense array of varieties.

I will, however, favour your readers with notices of a few of the most prominent; the first I think is well known, viz., *crassifolia*, at least one sees it oftener than almost any other species. There is a complaint made sometimes that this does not flower well, if so, it is, I think, attributable to a want of removal now and then. Of this I have a variety raised by the late Mr. Shephard of the Liverpool Botanic Garden, which flowers two or three weeks earlier that its parent.

S. ligulata is a fine plant, but requires a sheltered situation to flower well. The leaves of this species are quite smooth on both surfaces, and its flowers are pale blush, almost white.

S. ciliata is quite distinct from the latter, and quite as showy, if not more so. It has leaves hairy on both surfaces, and flowers deeper coloured than the preceding. I was informed by a botanical friend that the famous Dr. Wallich considered them one and the same, till he saw them growing side by side in my friend's garden, he then immediately said they were distinct, and ever after found the habits of the two quite so.

S. Nelsoniana is a beautiful species, with orbicularly cordate leaves. The flowers are on short pedicels, the petals are dotless, oval, and white; the nice tuft of leaves and pure white flowers combine to render this plant very beautiful. Being from the north-west coast of America, it will stand the most inclement weather.

S. melaleuca is a plant seldom seen; its leaves are also somewhat round, and the scape is few flowered, the blossoms almost form a corymb. The petals being of a lively sulphur colour, suffused on the outside with violet, render this kind particularly attractive; its leaves present another source of attraction, for they are green, suffused with yellow, while the upper part of the plant is altogether violet.

S. Jamesii is another species of great merit, alas! too seldom seen. The leaves of this plant, or indeed the whole, is more or less beset with a glandular pubescence. The racemes of flowers are all secund, or one-sided, and the flowers themselves are very beautiful, and as nearly as possible the size and colour of *oppositifolium*.

S. flagellaris is a very pretty growing kind, with fine yellow flowers, and tufted leaves. This kind very often sends out from six to twelve stolons or threads, and at the end of these there comes out a tuft of leaves, by which the plant soon forms a nice carpet.

An interesting species worthy of general cultivation is *S. tenella*, a plant which forms a nice tuft of narrow foliage. The peduncles of this species appear generally by threes. The flowers are white and spotless, with pretty yellow anthers. Altogether it is a very compact and beautiful species.

S. aspera is another cæspitose plant of nice dwarf habit, forming a moderate sized patch, and covered with large cream coloured flowers. The nerves in the petals in this species are branched.

S. retusa is a most charming little pot-plant, and ought to be grown in every collection. It forms a very compact tuft of harsh leaves; the flowers are purple, with the styles much longer than the corolla.

This cannot be too strongly recommended, as it flowers so freely and is really such a handsome plant. *S. cotyledon* is a fine, handsome, free-flowering species, and should be in every border also; it requires frequent removals, otherwise it will dwindle away. Flowers white, and very freely produced. *S. ceratophylla* is a beautiful tufted plant, with neat white flowers, freely produced; this species is reddish at the base and covered with viscid juice. Although a native of Spain it is very hardy with us. Lastly, I would recommend *S. Hypnoides*, which forms so charming a tuft—quite cushion-like. It flowers most freely, while its pure white blossoms being so copious, on such a nice tuft, render it generally admired.

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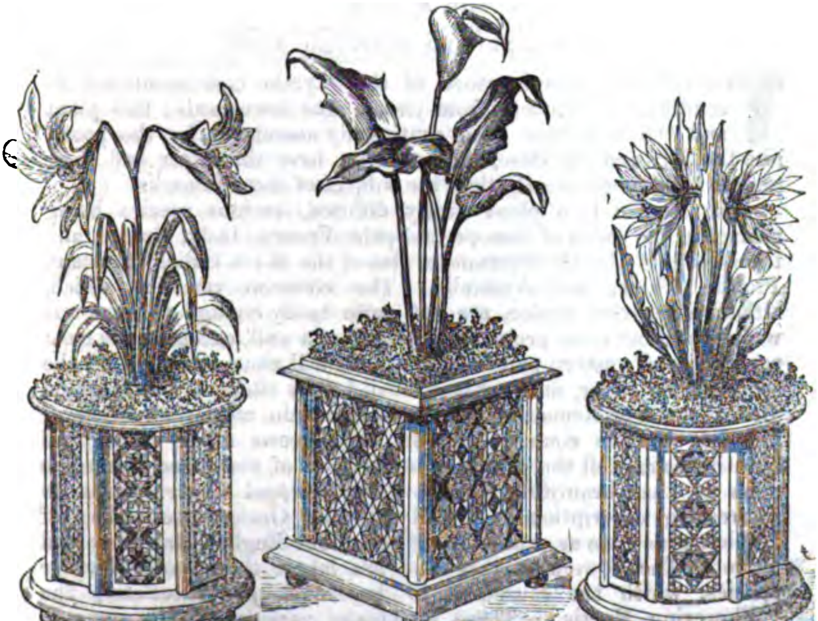
THE NEW GLASS MOSAIC JARDINIERE.

WE have had occasion in another place to refer to Mr. Ransome's improvements in artificial stone-work for vases, edgings, and statuary. We here call attention to a new style of decoration in connection with plant culture, namely, to Mr. Stevens' new Glass Mosaic Flower Pots, as most elegant ornaments for the reception of plants in the drawing-room. The glass mosaic



is introduced in panels of pure white polished cement, and the "pots" are made after various beautiful forms, the mosaic being of many elegant patterns, which we can only compare to the endless forms seen in the kaleidoscope. The pots are lined with sheet zinc, either to hold another pot, or soil for plants, or to contain water, as a vase for the reception of cut flowers. They are, in fact, the most beautiful things of the kind that we ever saw, and, when more generally known, will win universal admiration. On a stand, as a window ornament, there can be no more attractive object. Mr. Stevens is deserving of great commendation for such a happy idea as the application of glass mosaic-work, remarkable for its rich and costly appearance, to the embellishment of flower pots. We would recommend our lady amateurs to inspect the stock at the manufacturer's premises, No. 56, Great Queen Street, Lincoln's Inn, being assured they will not fail to be delighted with so elegant an article for the reception of their drawing-room pets.

REMARKS ON POPULAR FLOWERS AND OLD GARDEN FAVOURITES.

THE MYRTLE.

BY MR. EDWARD SHEPPARD, BURY.

THE beauty and fragance of the Myrtle have combined to render it a favourite from classic ages downwards; this plant and the Bay have been continually associated by the poets, like the Lily and the Rose, and not even have the latter had their praises sung more sweetly than the subject of these remarks.

The Myrtle is a plant widely diffused, various species being natives of the south of Europe, as Spain, France, Italy, Greece, and the islands of the Mediterranean, also of the West Indies, Surinam, Florida, China, and Australia. The common varieties, which, although not very tender, are not quite hardy enough to bear our winters without some protection, or against a wall, except in the most southern and western parts of the island, will alone come within the scope of my paper, and to these I will briefly allude. The common Broad-leaved or Roman Myrtle does not attain more than eight or ten feet in this country, but in Italy grows much taller, and constitutes as well the principal underwood of the forests in some parts of that beautiful country. Mr. Keppel Craven gives an interesting description of the Myrtle and Orange-tree hedges of Naples, which are as common as those of our English Hawthorn and Privet. The flowers of this kind are larger than those of other species, which has caused it to be called, *par excellence*, the "Flowering Myrtle." There are many varieties of the common Myrtle, as the Orange-leaved, Bay-leaved, Italian, Broad-leaved Dutch, Box-leaved, Thyme-leaved, and Double-flowering. The Box-leaved variety has very small blossoms, which appear late in the summer, and for this reason is a distinct sort, well worthy of a place with the Broad-leaved variety. All the Myrtles are readily increased by cuttings; the most straight and vigorous young shoots should be selected, and the leaves stripped off for two or three inches at the lower portion of the stem; the part that is to be inserted in the earth should be a little twisted, which will cause them to root sooner; when planted the soil must be pressed close, and a little water given them. They will require to be shaded from the noonday sun, and always kept moderately moist. The best time to put in the cuttings is July; they are generally struck in a little heat, but will take root very well without that assistance in a cool greenhouse or pit, though not so quickly as where it can be allowed them. With the exception of the Orange-leaved, all the varieties I have enumerated may have air given them in mild weather throughout the winter, only requiring to be preserved from frost; during this season they may be watered just enough to prevent them getting dry, and should have attention to pick off all decayed leaves. In spring the young plants may be potted off, with as much soil adhering to the roots as possible, and kept under glass until they have made new roots. About the middle of May they should be gradually accustomed to the open air, but placed where they may be defended from strong winds. During the summer, Myrtles require plenty of water, especially the plants in small pots, which are sooner dry. They should be placed so as to have the morning sun only, for if exposed to the meridian heats the growth will be retarded. In August, if the roots have made their way through to the side of the pot, the plants may have another change to a size larger. If the branches require trimming this is the time to do it; but the double-blossomed variety will not bear much cutting.

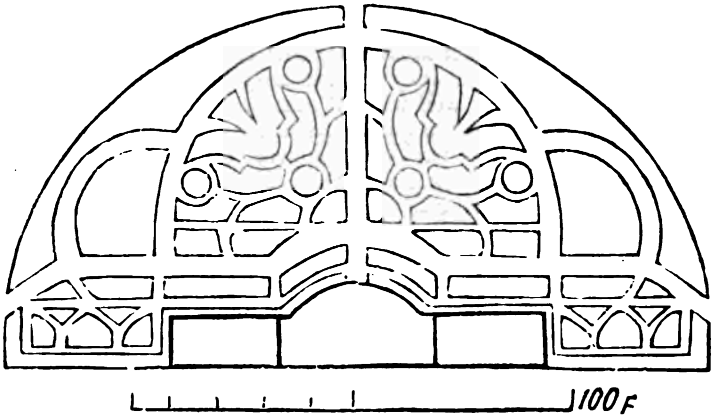
Myrtles should be planted in small pots at first, and then very gradually shifted as the increase requires, for large pots will not only weaken, but sometimes destroy them. By the middle, or, if the season be mild, the end of October, Myrtles should be removed into the house, both old and young.

In Cornwall and Devonshire, however, where the winters are milder than in most other parts of England, Myrtles, after they have become established, will endure the open air all the year round; and there are Myrtle hedges which have grown to a considerable height, and are very strong and healthy. They will do against a wall, or in a warm corner, however, much farther north.

The Myrtle was formerly used in medicine; it was a great favourite with the ancients, and either on account of its beauty, or because it thrives best in the neighbourhood of the sea, it was held sacred to Venus, as the Olive was to Minerva, the Poplar to Hercules, the Ivy and the Vine to Bacchus, the Hyacinth and the Bay to Apollo, etc. The berries were formerly used also in cookery; and both those and green sprigs were put into wine. Evelyn speaks of a decoction of Myrtle berries for dyeing the hair black.

DESIGN FOR A FLOWER-GARDEN IN FRONT OF A CONSERVATORY.

BY T. RUTGER, ESQ.



THE sketch herewith delineated, has the flower-garden in front of a conservatory, with wings at each end, of which one may be devoted to orchideous plants, and the other for choice green-house plants. The centre, or conservatory, may be furnished with plants, planted in the soil, or otherwise, as fancy may direct. The irregular border, adjoining the fence, is for choice shrubs, and the two side clumps for American plants. Choice may be made of beds for flowers in masses, for which many of them are suitable. The edgings for the beds may be of Box, or of some other material which may be thought proper for the occasion.

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GAS-HEATING.

BY E. M., BROMLEY.

MY experience in gas-heating prompts me to forward a few remarks on the subject, chiefly, however, in consequence of having perused the query of Mr. Worth in a recent number of the *Cabinet*. I have never seen Thomson's apparatus, upon which that gentleman so strongly animadverts, and am, therefore, unable to offer any opinion as to its merits, or otherwise, but I have been just as unfortunate as he has with one of Rickett's gas-stoves, which I have had in use four years, until I was compelled to discard it, having lost some two hundred plants last winter. Heating by gas is certainly a very convenient thing, requiring so little trouble or attention in use, or to maintain an equable temperature; but then the heat and gases which are given off are a perpetual source of annoyance, when burnt inside a house, as mine was, although I had a chimney to carry off the products of combustion—still, there was always a disagreeable smell, and sometimes a little escape of unburnt gas besides. From what my experience has taught me, I would never introduce gas inside my greenhouse at all. I have had a small hot-water apparatus at work, heated by gas, of which I give a description below. If Mr. Worth has a particular desire to heat his house with gas, such a plan is the only one that I would recommend, and, alas! it is only applicable to a house of very moderate dimensions. I would inform that gentlemen, however, that to burn gas has always proved with me more expensive than coal. For a gentleman who is his own gardener, the gas has one great recommendation, and that is, as I. have before said, it is very little trouble, and may be kept burning for any length of time without attention. In my greenhouse (which is rather a large one), on the following plan even, I found the burners were not sufficient to drive the heat round the house. The apparatus is constructed as follows:—The boiler is formed of copper, cylindrical, with a convex top and concave at the bottom. A pipe passes upwards through the entire length of the boiler, to carry off the products of combustion and foul air. A flow and return pipe enters the boiler near the top and bottom, and is carried round the house. To the upper end of the pipe a small stop-cock serves as an air-valve. There is a small cistern with a pipe attached to supply the boiler with water, which may be placed either within or outside of the house. Under the boiler, and supported on a small tripod, or three legs, is a small iron-wire sieve, which is filled with pieces of pumice-stone; this is placed over the gas-burner, and serves to absorb the greater portion of soot. The burner is a ring, pierced with a number of small holes. For further information I would refer Mr. Worth to No. 2 of the *Gardeners' Chronicle* for the year 1857, where he will find full particulars concerning this plan of heating.

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ON THE CULTURE OF THE GENUS BOSSLÆA.

BY A NOBLEMAN'S FLOWER GARDENER.

THIS beautiful genus is found, I believe, exclusively in New Holland, or as it is now termed, Australia. They are a tribe remarkable for elegance, and especially for their abundant blooming qualities. Most of them are, however, too similar in colour, and want distinctness; on which account, a collection of all the species is seldom met with, although they are capable of making very nice specimen plants. A few are deserving of being grown in every greenhouse, especially the following, which are all more or less distinct:—

B. cordifolia.—A dwarf-spreading shrub, with terete villous branches, and cordate-acute, nearly sessile leaves. The yellow flowers are marked at the base of the standard with a purple circle, and have a dark purple keel. New Holland. Introduced 1824. Flowers in April and May.

B. disticha.—A dwarf shrub, rather erect in habit, with slender branches, and two-ranked ovate-obtuse leaves. The flowers are showy, on stalks longer than the leaves; the standard is pale yellow, with a spot of deeper yellow at the base, and bordered with red; the wings stained with red at the base. Flowers from April to October. Swan River. Introduced 1838. A variety of this is grown in gardens under the name of *B. disticha plumosa.*

B. ensata.—A singular-looking, upright species, with compressed linear leafless branches, toothed along the edges, and bearing the flowers from the notches. The flowers are yellow; the base and back of the standard brownish orange purple; the keel brownish purple. Flowers from May to July. New Holland. Introduced in 1825.

B. linophylla.—A small, slender, erect-growing shrub, with compressed branches, bearing linear leaves with the edges recurved. The flowers are yellow, the standard veined at the base with red, and the wings and keel marked with the same colour. Flowers from May to September. New Holland. Introduced in 1803.

B. rhombifolia.—A small, spreading shrub, with the branches terete, and the branchlets compressed, bearing rhomboidal-orbicular leaves, somewhat emarginate and mucronate. The flowers are yellow; the standard with a zonate, red mark at the base; the base of the wings red, and the keel brownish purple. Flowers from April to June. New Holland. Introduced in 1822.

B. tenuicaulis.—A pretty twiggy shrub, with round, slender, straggling branches, and sub-sessile ovate-subacute mucronulate leaves. The flowers are yellow; the standard marked with a zonate blotch of red at the base; the wings streaked with red; the keel dark red. Flowers in April and May. Van Dieman's Land. Introduced in 1836.

Their cultivation is very simple; the secret of producing fine specimens, being that of laying a good foundation, for without that it will be impossible to produce a fine plant. To this end procure, when purchasing plants, the strongest you can meet with in the nurseries. When I say the strongest, I do not mean plants twelve or eighteen inches in height with a few branches, but short bushy ones; and if the collar, or part of the plant just above the soil, is as thick as your finger, and the plant is healthy, and the roots vigorous, you may make sure you have a good plant. It may be remarked that the preceding criterion of a good plant may be taken as a safe guide in purchasing plants of all kinds, more especially hard-wooded ones, for if they are dwarf and healthy, and have, moreover, strong stems, you may make sure that whether they be large or small, they have been well propagated, and well cared for afterwards. Having obtained such, take some good fibrous, turfy peat, such as those who understand plant-growing procure from Wimbledon Common, and after removing the soil or sand from the bottom, and the coarse vegetable matter from the upper surface, break it into small pieces, and then pass every part through a half-inch sieve; to four parts of this, add one of nice mellow, fibrous, turfy loam, two of gritty sand, and one of charcoal and potsherds, broken to the size of hazel nuts; mix these intimately together, and then they are ready for use. Next procure some clean porous 6 or 8-inch pots, and drain them thoroughly. If the plants are such as I have advised you to purchase, place the strongest in the largest pots, and the weak ones in the 6-inch size, taking care to *fit* the soil nicely about the roots, and to make it tolerably firm. The plants should then be placed in a pit or frame where they can be kept tolerably warm and moist, shading them in mid-day until they begin to grow, and taking care to syringe them and shut them up early every sunny afternoon. Thus treated, they will progress very rapidly, and some of them will probably require a second shift towards September. If a frame or pit cannot be spared to place them in, make the nearest approximation you can to the conditions required to promote free growth in the greenhouse, by keeping a part of it close; or place the plants in a vinery, or other forcing-house, where the temperature is not too high, and where plenty of air can be admitted in favourable weather. It will be necessary to curb redundant growth by timely stopping the strongest shoots, to make them branch; but in the cultivation of Bossiæas, unless a branch takes a decided lead, nothing will be gained by stopping it, as they generally, at least the majority of the kinds, produce secondary or lateral shoots in tolerable abundance. When they are at first potted it will be necessary to water the plants with caution, but after they get into free growth, and are well rooted, a good soaking occasionally with *weak* liquid manure, such as is produced by steeping a bushel of sheep's dung in a hogshead of soft water, to which a peck of soot and a quart of guano may be added, will be of considerable service. This, diluted with an equal quantity of clear water, will be found excellent for plants of all kinds, providing its use is guided by a practical eye, and too much is not given at one time. As a general rule, if the soil is good, liquid manure should never be used until the pots are tolerably well filled with roots, and under no circumstances to a plant that is in delicate health; for in plant cultivation, over-feeding is worse than under-feeding, for you may keep a plant alive on little, but once gorge the system, and a plethoric habit is induced, and all healthy action is at an end. I make these remarks thus plainly, not only as applicable to this tribe of plants, but to all plants, and to all cultivation, therefore, inexperienced persons will act wisely to make a note of it for their future guidance. All the plants belonging to this genus are very subject to the attacks of the red spider, so it will be well to look them over occasionally, and after syringing, if they are affected, dust them over with sulphur, and let it remain for a few days, when it may be washed off again. These plants may be propagated by cuttings of the half-ripened wood, but, as they produce seeds very readily, it is seldom necessary to increase them by cuttings. The seed should be sown directly it is ripe in July, and the plants be nursed in small pots through the winter. In the second year, the established plants may be grown, after they have bloomed, in the open air, taking the same precautions as before directed as to insects, etc., and potting them when necessary. They require a little attention to keeping them in a nice form, as they are very apt to straggle at random, unless looked to.

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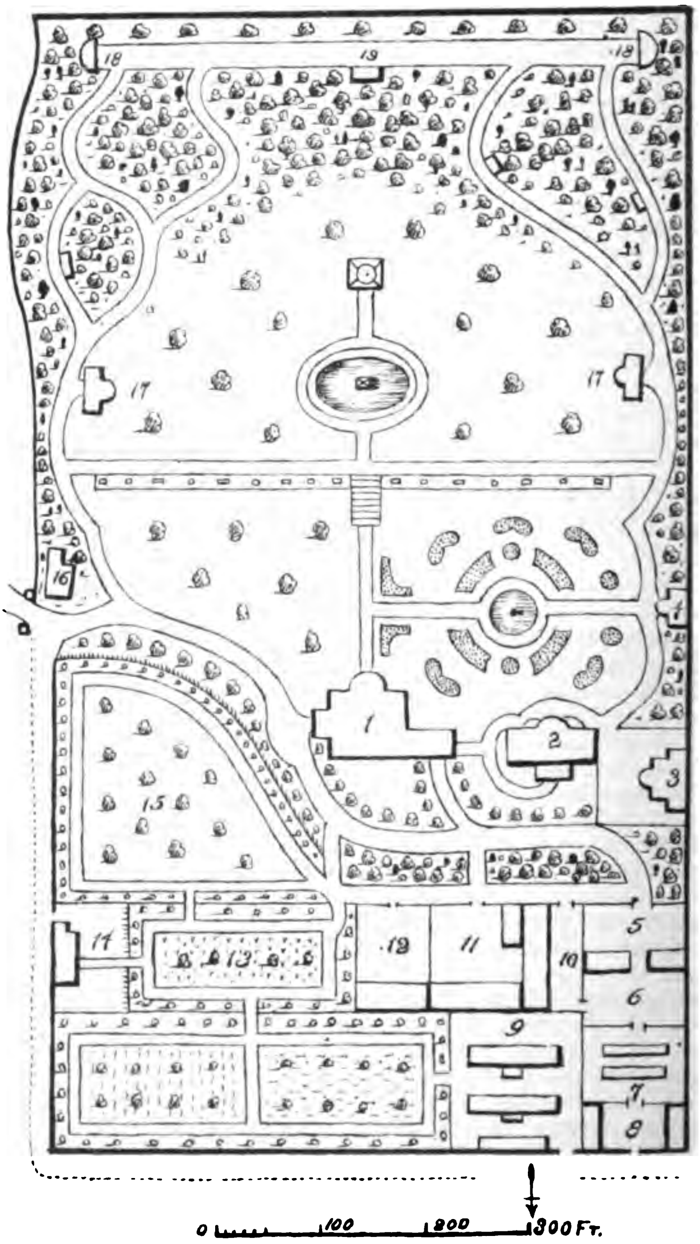
DESIGN FOR THE GROUNDS OF A VILLA RESIDENCE COMPRISING ABOUT SIXTEEN ACRES.

BY T. RUTGER, ESQ.

(*See Plate.*)

IT must be understood that the southern portion of the ground, delineated in the design here given, is considerably elevated, and to reach its summit, winding walks through the closely-planted shrubbery, with resting-places, are given, for ease to those who may be inclined to reach the broad terrace-walk above, where the walk has an alcove at each end, and a seat in the centre. From the terrace, bounded by an invisible fence, a fine landscape view on the south is supposed to be presented. The house stands in a valley, from which a walk leads up to a flight of steps, where the ground suddenly rises up to a plateau, where a pond is introduced, having in its centre a place indicated for a figure of some kind for embellishment; the pond is supposed to be replenished by springs rising out of the hill above, and is intended for a reservoir to supply the house and premises with water, to be conveyed by underground pipes for that purpose. From the pond you are led up to a site intended for an obelisk. This compartment is supposed to be flat, having a summer-house at each side, and choice shrubs planted on the lawn. A neat retaining wall separates the lower ground from the plateau, whereon places are indicated for ornamental embellishments, such as vases, statuettes, etc. A lodge entrance is given, and the approach road to the house is carried on to the entrance of the stable-yard; on the west side of the house a conservatory is given, and adjoining thereto is an aviary. The flower-garden has a pond in the centre, and a tea-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room at the side. The whole of the premises contain about sixteen acres.

Reference.—1, House; 2, Conservatory; 3, Aviary; 4, Tea-room; 5, Stable-yard, stables, and coach-house; 6, Dung-yard; 7, Frame-ground; 8, Reserve-ground and sheds; 9, Forcing department, with a shed; 10, Piggery; 11, Laundry-yard, laundry, and brewhouse; 12, Poultry-court and shed; 13, Kitchen-garden; 14, Gardener's residence; 15, Fruit-garden; 16, Lodge; 17, Summer-house; 18, Alcove; 19, a Seat.

NOTES ON NEW AND RARE FERNS.

BY MR. W. S. PRESTOE, VICTORIA PARK.

(*Continued from page* 215.)

LEPICYSTIS (J. Smith.) *Polypodium* (Sp. Auct.)

Generic Description.

SORI round, protruding through very thickly-set squamæ, which give, at first sight, the appearance of an indusium; veins anastomosing, the lower venule of each fascicle free, bearing the sporangia upon its apex in the costal areoles; fronds pinnatifid, from four to twenty inches long, densely covered with beautiful scales, articulated near the rhizome; rhizome creeping, densely covered with scales. This genus is readily told from *Goniophlebium* by the fronds being covered with beautiful scales, which, in this genus are remarkable objects for the microscope.

L. sepultum (J. Smith), *Polypodium sepultum* (Kaulf), *P. rufulum* (Presl.), *P. hirsutissimum* (Radd). Fronds lanceolate, pinnatifid, from six to twelve inches long; pinnæ lanceolate, densely covered with light brown coloured scales, which give the fronds when matured a greyish appearance. A native of tropical America, it loves to ramble among large pieces of peat and broken pots in a warm moist atmosphere. It requires frequent syringing, as the thrip is a dreadful pest to it. A few nurserymen have this species.

L. incana (J. Smith). *Polypodium incanum* (Swartz). *P. velatum* (Schk.) A native of tropical America. Treatment as for the above species. This is in the trade.

PHLEBODIUM (R. Brown, J. Smith), *Chrysopteris* (Link), *Polypodium* (Linn.), *Marginaria sp.* (Presl., according to Moore).

Generic Description.

Sori round or oval, transversely universal, or irregular, destitute of an indusium; veins variously branched, angularly anastomosing, venules reticulated, forming variously-shaped areoles, usually elongated, always more or less angular, producing on their exteriors two or three veinlets, joined together near their apex, whose summit bears the sporangia; fronds pinnatifid or pinnate, from one to five feet long, articulated near the rhizome; rhizome creeping, fleshy, covered more or less with scales; this genus is readily distinguished from *Goniophlebium* by its irregular anastomosing veins, and the sporangia being situated upon two or more veinlets, rarely upon one, whereas in *Goniophlebium* it is always upon one.

P. aureum (R. Brown), *Polypodium aureum* (Linn.), *Chrysopteris aureus* (Hort. Berlin). A native of various parts of tropical America.

P. sporodocarpum (J. Smith), *P. glaucum* (Hort. Kew), *Polypodium sporodocarpum* (Willd.), *P. glaucum* (Hort. Berlin). A native of Mexico.

P. dictyocallis (J. Smith), *P. multiseriale* (T. Moore), *Chrysopteris dictyocallis* (Fee). A native of tropical America. All the *Phlebodiums* require a moist, warm atmosphere; soil rough peat, leaf mould, with plenty of large broken crocks; and to be well elevated above the rim of the pot, as recommended for *Goniophlebiums*. All the above are in the trade.

PLEOPELTIS (Humb., J. Smith), *Polypodium* (Linn.), *Phlebodium*, *Pleopeltidis sp.* (Presl.), *Atactosia* (Blume), *Phymatodes* (Presl.), *Drynaria sp.* (Auct).

Generic Description.

Sori round or oblong, covered with small peltate scales, forming an indusium; veins anastomosing; venules much branched, reticulated, forming several series of irregular, angular areoles, within which are produced variously directed, curved or straight, free veinlets; the sporangia are produced on confluent apices of two or three veinlets in the medial areoles; fronds simple, rarely pinnatifid, from two to twelve inches long, more or less coriaceous, often opaque, always furnished more or less with small, peltate or cordate scales; fronds articulated near the rhizome; rhizome creeping, wiry, covered with scales upon the sori; very peculiar and beautiful objects for the microscope.

P. percussa (Presl.), *Polypodium cuspidatum* (Presl.), *Pavonium* (Desf.) Fronds lanceolate, six to nine inches long, thinly covered with cordate and peltate-shaped scales; sori, when young, densely covered with peltate scales, the sori being partially imbedded in the substance of the frond. A native of tropical America.

P. lanceolata (Presl.), *Polypodium lanceolatum* (Linn.), *P. macrocarpum* (Willd.), *Pleopeltis macrocarpa* (Kaulf.), *P. lepidoptera* (Presl.), *P. Helenæ* (Presl.) A native of tropical America, St. Helena, and South Africa; this genus requires a warm, shady atmosphere, and should be allowed to ramble over old pieces of wood, or large lumps of peat; there it will form an interesting object. The above two species may be purchased of the nurserymen.

ANAPELTIS (J. Smith), *Phlebodium sp.* (Moore), *Pleopeltidis sp.* (Presl.), *Polypodium* (Linn.), *Craspedaria* (Link).

Generic Description.

Sori round or ovate, naked; veins angular, anastomosing, forming irregular, various-sized areoles, containing in the medial areoles one, two, or three simple, free veinlets, joined at their apex, there producing the sporangia; fronds simple, from one to eight inches long, the under surface thinly covered with cordate scales, the fertile fronds more or less contracted, articulated near the rhizome; rhizome creeping, densely covered with scales. This genus is easily recognized from *Pleopeltis* by its sori being naked.

A. Vacciniifolia (J. Smith), *Polypodium Vacciniifolium* (Lang et Fischer), *P. buxifolium* (Hort. Berlin). A native of Brazil.

A. venosa (J. Smith), *Phlebodium venosum* (Moore), *Polypodium venosum* (Hort.) A native of tropical America. This is a truly beautiful species, the veins being of an olive green colour. Both species are common.

(*To be continued.*)

REMARKS ON TEMPERATURE AND THE PROTECTION OF PLANTS.

BY R. L.

IN considering this subject, it must appear self-evident to any person who clearly reflects on the laws of temperature, that to protect plants from frost, the great effort should be to retain, if possible, the heat which has been accumulated near the plants through the day. If water be near, it has a tendency to assume the state of vapour, and rob the air of its heat; the sap of the plant may be more abundant also from this cause, and increase the expansion of the fluids by frost, which may end in the bursting and laceration of the vessels, and be the cause of death. When a clear cold night succeeds to a wet day, if the night is long, and the atmosphere does not get cloudy, the heat radiates upwards from the earth and plants into the cold air; while the evening at first is comparatively warm. The cold is also greatly accelerated by the evaporation of moisture: it is calculated that it takes above 800 degrees of heat to convert water into steam; and though vapour does not require so much, part of the vapour being chemically attracted by the atmosphere, still the consumption is great. From these causes the earth and plants by degrees get so cold, from having parted with their heat, that their temperature descends below the freezing point. In spring and autumn the air is comparatively warm, and the nights not so long; and hence spring and autumn frosts seldom take place till near sunrise; and if a cloud happens to settle above any portion of the earth about that time, before the earth has been cooled down to the freezing point, it prevents the further radiation of the heat upwards; and hence we often find places lying contiguous and below the cloud to be saved from frost at one time, while at another they will be much hurt. Where plants partially cover one another, they help to prevent radiation; and when one plant is more covered with moisture than another, or growing more vigorously, more full of watery sap, and the bark more tender, from these and other causes one plant is often, to all appearance, unaccountably killed, while another is left unhurt. In order to protect plants from frost, we should study to have the plants themselves, and the earth around, *as dry as possible* towards the evening. The situation for plants liable to be hurt by spring and autumn frosts should be as much elevated as possible, in order to have the benefit of the wind in dispersing the cold heavy air and bringing forward the warmer; in low situations the cold air, being heavier, collects, and not being benefited by the dispersion of the wind and bringing forward of warmer air, plants are much more liable to be hurt by slight frosts in such situations. Wherever possible, when the clearness and coldness of the air indicate a tendency to frost, plants that are worth the expense should be covered with the best non-conducting substance we can fall in with. Metals are the worst; if polished and bright in the colour, however, they are better non-conductors than when dark-coloured and rough; wood is better; but, unless when saturated with moisture, *woollen is the best of any*, from the confined air retained between the hairs of the wool. Whatever covering is used, whether straw mats, bast mats, cloth, or wood, they should be elevated above the surface to be covered, so as to contain as much confined air as possible: confined air is one of the worst conductors of heat; the covering will not radiate, or give out heat, till the confined air and covering are both heated above the state of the atmosphere; and the transmission of heat will take place more slowly through the confined air than anything else: thus, for very little trouble, by elevating our coverings, we surround our plants or plant-structures with a substance which is very retentive of heat, and increases the power of the covering in an immense degree. The heat has most tendency to ascend upwards; and this should be most guarded against; but it will also escape by the sides, and to confine the air and heat completely, the plant or plant-structure must be covered all round from the external air. Wall plants should have a broad coping of wood on the wall, to prevent the ascent of heat; and woollen nets drawn before tender creepers, etc., in cold nights, and carefully removed in good weather through the day, are a great help, when not left on in all weathers. The wall is best built of porous materials, as bricks, which retain the heat from the confined air better than stone; and they should be built with hollow chambers, as advised by Mr. Loudon, for the same purpose. Where painting is needed, white is the best colour. To prevent the bad effects of cold east winds in the spring, causing the sap to descend in standard trees, and destroying the blossom when expanded, by the check it gives to the ascent of the sap that should nourish it, the stems and branches should be bound with straw ropes, and the ground mulched. Various situations should be chosen, to protect tender shrubs and trees, according to the nature of the plant. For those that spring early, and are apt to be nipped by spring frosts, a north border and cold soil are best to retard their time of starting till the danger from frost is less; for those that suffer from want of the wood being ripened sufficiently, as many American plants which have a warmer summer in their native situation to ripen the wood, as also for those that suffer by autumn frosts before the wood is ripened, a south exposure and warm dry early soil are best: in dry soils there is not so much wood made, which is more easily ripened; and the more sun, the more likelihood that the wood will be ripened before frost sets in. In some late wet autumns, I have seen some of the hardiest of our trees killed: transplanted Birch, after being some years transplanted; Oaks, that were apparently sound, dying down half their length in the ensuing spring; and seedling American Oaks dying off in the ensuing summer, after having begun to grow; thus showing that even the hardiest of our trees may be affected, from not being sufficiently ripened, in a cold wet autumn. The presence of a stream or river is generally allowed to increase the tendency to slight frosts in spring and autumn. The surface of the water, as it condenses by cold, descends to the bottom, and a warm stratum succeeds to the surface; and so far the tendency is towards heating, rather than cooling the air; but the great evaporation that takes place through the day, and early in the evening, robs the air of so much caloric, that fields situated near shallow rivers, streams, and bogs, have generally been found most liable to frost: near the sea, or near great bodies of deep water, the first-mentioned effect, of a succession of warmer stratums to the surface, prevails, and we have less tendency to freezing. Watering in the morning early, if the frost has not penetrated to the juices of the plant, may, by washing off the cold dew, prevent the frost from penetrating; and covering from the sun may save a plant partially hurt from the excessive change of temperature, if a bright sunny day succeed the frosty night: but no power on earth can recover the plant if the juices have been expanded by freezing *till the vessels are burst*, which may be known by the change of colour in the leaves, by the suffusion of the sap. If some of the most tender leaves only are hurt, on the young growths, the plant may survive; if the wood is generally young and succulent, as in seedlings, Dahlias, etc., the whole plant generally perishes, unless where there is an old ripened root or wood to renew vegetation. Some plants, as Beech, that throw out or evolve most of their young buds in spring, are apt to perish, even though some years old, before the latent buds can spring; the Oak, Ash, etc., that have always spare buds, are not so apt to perish.

REVIEW.

Emery's Journal of Agriculture. Published weekly by EMERY and Co., Chicago, Illinois.

THIS is an American publication of sterling merit. The title scarcely expresses the full scope of the work, which is not wholly confined to agriculture, but embraces horticulture in general, and much excellent information of a domestic character, household affairs, etc., interspersed with light pleasant reading, and calculated to be very useful in a fine rising country like the State of Illinois, where we are happy to see a taste for gardening extends, and is rapidly increasing. The work has already reached its thirty-first number, and we understand it is (as it deserves to be) well supported. Among its contributors we notice the names of some of the best American florists, and we need only add, that its horticultural part is under the editorship of our friend, Mr. Charles Kennicott.

The following extract is *àpropos* to an article which recently appeared in the *Cabinet*:—

"Clio," a writer for that valuable and pleasant English periodical, the *Floricultural Cabinet*, in an article treating of hardy and desirable perennials, speaks in high terms of commendation of the *Dodecatheon Meadia*, *Spigelia Marylandica*, and *Tradescantia Virginica*, all of which are indigenous to our Prairie State. The *Dodecatheon* has been known and esteemed since 1709, when Miller saw it growing in the garden of the Bishop of London. The *Spigelia* (abundant in the southern part of the State, but rarely found in cultivated gardens), our writer says, is still a rare plant in England. All three of these really beautiful and desirable plants can be readily cultivated, and should find a place in every cultivated garden. The *Tradescantia* is greatly improved by careful cultivation, and, though the foliage is coarse and unattractive, the flowers are showy, delicate, and interesting, appearing in succession nearly the whole of the summer.

In England, it appears, they esteem the most highly the purple and white varieties. Among our native wood flowers, few are more attractive than *Mertensia Virginica* (*Pulmonaria* of Linnæus), and *Dielytra cucullaria*, the first popularly known as Blue-bell, the last the elegant and curious "Dutchman's Breeches." On the creek and river bottoms of central Illinois, both plants abound, and reach a degree of perfection never seen farther north. We have seen acres of land in that region, in the month of April, literally one vast bed of *Mertensia*, whose beautiful blue flowers seemed still more charming when contrasted with the bloom of thousands of Red Buds (*Cercis Canadensis*) springing from the same soil, and in flower at the same time, the whole forming a picture glorious as a dream of heaven, and well worth travelling hundreds of miles to see. Both the *Mertensia* and *Dielytra* can be easily cultivated, only requiring shade and a rich, light, sandy soil. There is another dwarf-growing species, native of this State, also desirable. The *Dodecatheon* is too well known to most of our readers to require description. It should find a place in every collection. It likes a light sandy soil, with plenty of leaf-mould; a little shade improves it, but it will do well enough in the sun. The *Spigelia Marylandica* is a perfect gem. Its habit is neat, and its crimson flowers, resembling in shape the Trumpet Honeysuckle, are very pleasing.

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NOTES ON NEW AND SELECT PLANTS.

AZALEA OVATA. Nat. Ord. *Ericeæ.*—A very pretty little *Azalea* from the northern districts of China, whence it was introduced by Mr. Fortune. It has also been discovered in the neighbourhood of Hong-Kong, by the late Captain Champion. It is a half-hardy shrub, bearing an abundance of its pretty lilac or pale purple blossoms, each of which measures about an inch across; the leaves are about as much in length also, borne at the extremities of the branches, of a deep shining green, and ovate form. (*Bot. Mag.*, 5064.)

71. QUERCUS LAMELLOSA. Nat. Ord. *Corylaceæ.*—This fine tree was discovered by the collectors of the late Dr. Wallich, in the Eastern Himalaya, Nepal, Bhotan, and Sikkim, where, as Dr. Hooker says, "it is one of the most common trees, and is certainly one of the most noble oaks known, not only for the size of its acorns, the texture and colour of its foliage, but for the imposing aspect of the tree, with its fine straight trunk, from forty to sixty yards high. It preserves its leaves in winter, and is never bare; its wood, however, is indifferent. As with the oaks of our forests, its acorns are produced in much greater abundance at some seasons than at others; in the winter of 1848-9, they were so exceedingly abundant that it was really dangerous to ride on horseback along the passes in the vicinity of Dorjeling, as the hard, round glands were liable to make the horses stumble repeatedly." The leaves measure, in some instances, more than a foot in length, by half as much across in the broadest part, and are widely serrated along the margin. (*Hook. Himal.*, *Pl.* 20.)

72. MUSSCHIA WOLLASTONI. Nat. Ord. *Campanulaceæ.*—Although the island of Madeira has been the resort of naturalists for very many years, and repeatedly explored by botanists, it is singular that so fine a flowering plant as this should, until recently, have escaped detection. The Rev. Richard Thomas Lowe, botanizing one day in June, 1847, in a moist, rocky ravine, found two or three roots of the said plant, with only their pretty terminal crowns of leaves developed. He took the plant in this state for *Isoplexis sceptrum*, which, on account of the soil and situation, had grown to unusual

dimensions, and he was content to take a few specimens of the foliage for preservation in his herbarium. At length, in the spring of 1855, an inhabitant of the island, Senhor J. M. Moniz, showed him imperfect specimens with flowers and the same leaves, that he had obtained from a peasant in his employ, and which Mr. Lowe, with reason, regarded as not belonging to an *Isoplexis* at all. Towards the end of August of that year, the same man brought a number of branches with panicles in full flower, which he had gathered growing on the rocks a little below the Boca des Torrinhas. Afterwards dried specimens were forwarded to England, doubtless through his means. The plant in question, after due examination, appears to belong to the genus ***Musschia***, of which it is the second known species. In habit and appearance it is a noble plant, growing about seven feet high, and bearing a great abundance of pretty flowers, and a crown of lively green leaves, much serrated at their edges; from the centre of the leaves arises a terminal panicle of the blossoms about a yard high and as much through. The flowers themselves are almost like those of turn-cap lilies, and are pendent, of five long segments, much recurved, yellow, tipped with brick-red where they recurve; calyx of five divisions, campanulate; stamens five, styles very long and thick, hanging down under the blossoms. We have reason to believe that it will do well in the open ground for most of the year, merely requiring the protection of a greenhouse in the winter; it will consequently prove a desirable novelty, and is moreover, as we learn, easily increased by cuttings. (*L'Illust. Hort.*, 171.)

73. RHODODENDRON GRIFFITHIANUM, *var.* AUCKLANDII. Nat. Ord. *Ericeæ*. Syn. *R. Aucklandii.*—Remarkable for the immense size of its snow-white blossoms, which places it almost at the head of the genus in this respect. In Sikkim (of which country it is a native), two states of the species occur, one in which the flowers are much smaller, and the other in which they are of the noble size figured by Sir William Hooker, that is, *five inches across the corolla*, and in some instances *as much as seven*. It blossomed, for the first time in England, in Mr. Gaines' nursery, at Wandsworth, in May of the present year. It is a shrub, growing from four to eight feet in height, much branching from the base; the blossoms are in terminal corymbose racemes of from four to six together, and the leaves of great size, often as much as twelve inches long, of a fine bright green, edged with light yellow, very coriaceous, or of leathery substance. It has also, as we are informed, been detected in Bhotan, where, however, it never attains the magnificent proportions, either in flower or leaf, that it does in the Himalayas, or even with us in this country. (*Bot Mag.*, 5065.)

74. SAXIFRAGA PURPURASCENS. Nat. Ord. *Saxifrageæ.*—This, without exception, is one of the handsomest *Saxifragas* we know. It was raised at Kew, from seeds sent by Dr. Hooker from the temperate parts of Sikkim Himalaya, where that indefatigable botanist found it growing in wet places, at an elevation of from ten to fourteen thou-

sand feet above the sea level. It is a perfectly hardy perennial, flowering very freely, and bearing its pretty blossoms on a stout scape about six or eight inches high, in a dense panicle; their colour, together with that of the stalks, is "a deep, rich, vinous purple," rendering them very attractive. The leaves, which are of an obovate form, blunt at both extremities, are very stiff, of a bright glossy green, with a crimson mid-rib and edges. This will prove an acquisition in collections of herbaceous plants. (*Bot. Mag.*, 5066.)

75. Ismelia Broussonetii. Nat. Ord. *Compositæ.* Syn. *Chrysanthemum B.*, and *Pyrethrum B.*—Although this plant has been kept in a cool greenhouse at Kew, there is little doubt of its proving hardy enough for the open air. It belongs to the "Ox-eye" group of the *Compositæ*, and is certainly a handsome new plant. It attains a height of from two to three feet when under cultivation, although in its native habitat it grows no more than a foot. The flowers measure three inches across, and closely resemble those of a "Feverfew" in appearance; the ray is pale lilac, with a tinge of yellow towards the base, and the disc, dark purple at first, but when the florets come out fully it is bright yellow. The present species will prove another acceptable plant for the border. (*Bot. Mag.*, 5067.)

76. Campanula strigosa. Nat. Ord. *Campanulaceæ.*—From Aleppo and other parts of Syria, where, we are informed, it was originally discovered by Russel. Seeds were sent to Kew by Professor Fenzl, of the Imperial Botanic Garden, Vienna. At present it has been raised and kept in a cool frame, though it is probable it will prove a hardy annual. The plant is very dwarf, growing about four inches high only, and is a very profuse blooming species, having continued in flower for a month without any abatement of its beauty. The corolla measures a little more than an inch across, and the tube is nearly as much in length; its colour is purple or shaded blue, with a yellow tube; the calyx is large in proportion to the flower, and the leaves small, remotely placed. (*Bot. Mag.*, 5068.)

77. Ligustrum Sinense. Nat. Ord. *Oleinæ.*—Mr. Glendinning, of the Chiswick Nursery, received this Privet from Mr. Fortune, and with whom it has recently bloomed. The flowers closely resemble those of our common Privet, being white, and borne in similar sized panicles; the leaves are wavy, oval, somewhat obtuse, glabrous, and slightly downy on the under side; its berries are oval. In habit it is a deciduous shrub with slender branches. We believe it will prove hardy, being found wild as far north in China as Shanghae.

* * *

QUESTIONS, ANSWERS, AND REMARKS.

White Mealy Bug.—I have been much annoyed this season with the White Mealy Bug, which has done much injury. I have tried several remedies, but with very little effect. What would you recommend?—*S. W.* [We believe the following mixture will prove effectual :—Take soft-soap and flowers of sulphur, of each two pounds; shag tobacco one pound, and an ounce of spirits of turpentine. Mix thoroughly the soft-soap, sulphur, and turpentine with warm water, until it has the consistency of a stiff paste; pour a gallon of boiling water over the tobacco, and when cold add four gallons of soft water, and stir in the above paste. This should be applied with a large, soft, painter's brush over every part of the plants that are infested. We would not omit to recommend a diligent use of the thumb and finger, as many may be destroyed by crushing them at once. They are very prolific, and if one is allowed to remain over the winter, you will be again pestered next spring.—Ed.]

Thrip on Azaleas.—My Azaleas have been sadly pestered with the Thrip this summer, so much so indeed as to cause them to lose their lower leaves, and giving them a very bare appearance. What is the most effectual remedy? An answer for my future guidance will be much esteemed, being—*An Old Subscriber, Wigan.* [We should wish you to read some papers that have appeared in former numbers on this subject. We can only recommend tobacco—nothing more effectual than this. Let the plants be placed in a close frame or pit, and smoke them well with Gidney's patent fumigator once or twice, but not too strong at first; repeat the dose every second or third day. Instead of fumigating with the "fragrant weed," however, it is oftentimes more effectual to dip the heads of the Azaleas in a weak solution of tobacco-water. Be careful to prevent the soil in the pot being impregnated with it; therefore, after they are dipped, let them remain on their sides for a time. Dipping is more effectual than syringing with tobacco-water, as the entire plant, including the under surface of the leaves, is well wetted thereby. Afterwards give the plants another dip in clean water. To make the tobacco solution, about a couple of ounces of shag will be enough to make a gallon of liquid; pour a pint of hot water over it, and let it stand till cold, when sufficient water may be added to make up the quantity; by this means all the virtue will be extracted. If the plants are large, use the syringe, turning the plant round and inclining the head downwards. When Azaleas have been treated with tobacco-water they should be placed in the shade for a day or two. Sulphur and lime-water are very well, but there is certainly nothing like tobacco, either in smoke or solution.—Ed.]

Preservation of Geraniums in Winter.—I shall be obliged by your informing me of the best mode of keeping common Geraniums through the winter, having a large nunber of Scarlets, Flower of the Day, &c., which are transplanted in summer into the open ground. As I do not find it convenient to have a large cold pit, I find them so much "drawn" in the conservatory as greatly to impede their growth in summer. I have heard of hanging them up in the winter months, but do not understand the practice.—*A Constant Subscriber.* [Scarlet Geraniums may be kept in a shed, cellar, or garret throughout the winter so long as they are preserved from mildew and frost. Before taking up the plants, and a week or ten days previously, cut off the tops to within two or three buds of the last shoots. This will allow time for the wounds to heal before taking up the plants. When they are lifted shake off some of the soil and pack the roots in boxes of dry sand. Choose stocky plants, as those that have been drawn up are most liable to mildew. As soon as any branch is found to be moulding, cut it off below the place. Let them have as much air as possible—a free current whenever the temperature is above freezing. (Get one of Casella's Reliable Garden Thermometers.) Very little water should be given, and this not over the branches. You will find little difficulty in preserving your plants, thus stowed away, if you keep them as above directed.—Ed.]

White and Purple Rockets.—My plan of propagating these truly beautiful, though old favourites may be acceptable to some of your many readers. It is as follows :—When the plants are out of flower, I cut the stems about half-way down : by so doing, a number of young shoots appear on the upper ends of the portion remaining. I then draw a small quantity of soil round the stools, and, if the weather is dry, I give them water occasionally. I then make a bed, under a south wall, composed of equal parts of loam, leaf-mould, and sand. I next take off all the strongest shoots, either at the root or the upper part of the stalk, and plant them eight inches apart in the prepared bed. In about a month I go over them again, and take away all the strongest shoots, and plant them as before; by so doing the shoots left have a better chance of growing. I continue in the above practice until I have taken all the shoots from the parent plants, which then generally die. Last summer I had only four or five plants of each kind, yet, by the foregoing treatment, I have between sixty and seventy fine plants; those that were taken off first are certainly the finest, although the last are good plants. Rockets, when well-grown, are among the finest and most profuse blooming plants that one can have for the border. A bed of each kind is very attractive.—*T. K. S.*

HOLLYHOCKS AT BIDDULPH GRANGE.—Hollyhocks well-grown are beautiful. I say so from what I have seen of them at various places this year, but more especially at James Bateman's, Esq., Biddulph Grange. There, this season, they are uncommonly fine, and I believe that if they had been made use of for exhibition purposes they would have borne away the palm without doubt or dispute. I may just say that I noticed amongst them General Bem, Walden Gem, Pillar of Roses, Meteor, Sulphur Queen, Charles Baron, Black Prince, Lady Charlotte Neville, and Robert Macaire. Some of them had almost attained to the height of twelve feet, and had begun to flower at three feet from the ground. I believe the roots were two or three years old, and that all the shoots had been cut away from the bottom, excepting three to each stool, with the intention that the remaining shoots might have additional support in yielding what they now are doing, namely, abundance of fine, full, and good-formed flowers. I never before saw spikes so luxuriant, or plants so well-grown as these. Hollyhocks well-grown are truly, very beautiful.—*G. Harding, Biddulph.*

DATURA CERATOCAULON.—Having seen this plant highly spoken of in the *Cabinet*, I, this spring, procured a small packet of seed, which I sowed in the border in patches. They have come up splendidly, and are now in flower, and truly beautiful objects. The only wonder is, that such a plant is not more generally grown, especially as it has been introduced more than fifty years. The blossoms are trumpet-shaped, pure white, with light purple stripes at the angles, and measure nearly six inches across the mouth. I find the snails are very fond of the leaves however, and attention necessary to keep them clear.—*J. D. R., Herts.*

GAS-HEATING.—Having read the remarks by one of your correspondents reflecting on Thomson's Gas Stove, I avail myself of the opportunity to inform your correspondent that I have employed gas to heat a small greenhouse, twelve feet long, with much success. I have never seen Thomson's, but may observe that in my apparatus I merely employ the gas to heat a small boiler, and that it is not within the house, but outside. My boiler is of copper, as being very durable, and costing but little. In form it is cylindrical, or tubular, and laid horizontally; along the centre, the gas-pipe or burner is conveyed, and is pierced with a series of jets. The heat can be speedily raised by this means, although certainly not to a great extent, as the apparatus was never designed for that purpose, and the length of my pipe is but limited. I can, however, secure a temperature of about six or seven degrees above freezing in a strong frost. I would, without hesitation, advise your correspondent to avail himself of his gas for heating by hot-water, but by no means let the gas be within the house, for, although a stove or burner may be ever so well bricked off, there will generally be found a noxious escape, highly injurious to the plants. Gas-heating possesses many attractive points in the eyes of an amateur, perhaps, who considers it "just the thing," but, unless combined with a boiler, I would myself have nothing to do with it.—*Iota.*

ACANTHOLIMON GLUMACEUM.—This is a little alpine perennial, perfectly hardy in the climate of London, and from its habit of growing into dense tufted masses, it forms a very pretty ornament either for the flower-border, or for out-door rock-work, as well as for pot culture. It is cultivated with facility in the ordinary way in which alpine plants are managed, and is propagated readily by means of cuttings of the young shoots, placed until rooted in a moderately warm and close atmosphere, and subsequently hardened off when fully established. It prefers a rich, moderately light, loamy soil, when planted out. Cultivated in pots among other "alpine" plants, it accommodates itself perfectly to the usual treatment given to these "flowers of the sod."—*W. B.*

MANAGEMENT OF STOVE FERNS AND LYCOPODIA.—Answering the enquiry of a correspondent respecting the management of these most interesting tribes, I would commence by observing that a house where a temperature ranging from 50 to 65 degrees in the winter season, is essential to success, and not less so, abundance of moisture. Most Ferns delight in shady places, in which they develop their delightfully green foliage to advantage, and there are many which will grow under bell-glasses, or in glass cases in a warm room, provided they have a little air. Many of the Lycopods also succeed under the same treatment. Some of the British Ferns, as Hymenophyllum Tunbridgense and Wilsoni, and Trichomanes brevisetum, likewise do well under bell-glasses, provided they are kept moist and have plenty of drainage; for the grand point to be observed in the successful culture of Ferns, as well as of other plants, is efficient drainage; without this no plant will continue long in health. Ferns like a mixture of equal quantities of good rotten turf, peat, and leaf-mould, with a little river-sand. These materials should be well mixed together, and, if dry, should be moistened; after they are potted they should be watered, to settle the mould firmly round the root. They should never be allowed to get very dry, or they will suffer. Ferns are increased either by division of the roots or by seeds; the latter may be sown at any time in pots half filled with broken potsherds, over which a layer of rough sphagnum moss should be placed, the remainder to be made up of peat, leaf-mould, and a little silver-sand. The mould should be pressed even, the seeds sown without covering, and the pot plunged in a bottom heat of 75 degrees, and closely covered with a bell-glass. When the plants are large enough to be handled, they should be potted off singly into 3-inch pots, using the same kind of compost as that in which the seeds were sown; afterwards give them a gentle watering, in order to settle the mould firmly round the roots. Lycopods delight in a moist atmosphere, and in shade. I grow some in pots half filled with broken potsherds, the remainder being sphagnum moss mixed with a little river-sand. Some of them, as Braziliense, stoloniferum, cæsium, and denticulatum, do best in sphagnum. The other sorts succeed in peat, rotten turf, and a little river-sand. If cæsium is kept in shade, with plenty of moisture, it will put on a beautiful blue colour. Lycopods are increased either by cuttings or layers; when cuttings are employed, they should be potted in small pots in the above mentioned material, and plunged in a little heat; when layers are used, they should be pegged down with small sticks, and as soon as they have taken root, they should be potted and gently watered. We have in one end of our Orchid-house here a piece of rockwork, twenty-five feet long and ten feet wide, on which we grow a few choice Ferns and Lycopods. To grow specimen Ferns, the best way is to plant them out on rockwork, in about eight inches of earth. We have had the following planted out about two years and four months; they were small when they were planted:—Asplenium nidus, now five feet high and seven feet across; Gymnogramma Massoni, the Gold Fern, two feet high and five feet across; Adiantum formosum, four feet high and as much through; Didymochlæna pulcherrima, four feet high and five feet across; Adiantum trapeziforme; A. cuneatum; Polypodium aureum; and A. effusum. There is a wall behind the Ferns ten feet high, on which some of them are climbing up. Polypodium phymatodes and Aspidium exaltatum are the best for that purpose. Intermixed with the Ferns, we have the Sugar-cane (Saccharum officinarum), the Fan Palm (Chamærops humilis), Bambusa arundinacea, Maranta zebrina, Tillandsia splendens, and one of the tree Ferns. Over these in large wooden baskets are suspended Æschynanthus Boschianus, Lobbianus, radicans, a few Dendrobiums, Vanda teres, and Renanthera coccinea. Plants grown in this fashion have a wild luxuriance, which makes them very attractive, and which is unknown and unseen in ordinary specimens.—*W.*

Botanical Society of Edinburgh.—At the seventh monthly meeting of this valuable society the following interesting communication was read, from Dr. Hector to Professor Balfour, dated Fort Edmonton, on the Saskatchewan river, North America, January 5th, 1858:—"I had hoped to have been able to have given you a long account of our movements since I last wrote to you, but I must defer it until I have an opportunity in spring, as the gentleman in charge here is obliged suddenly to send off the winter express this afternoon, instead of the 12th, as he intended to do. I have just arrived here alone as regards the rest of our party, who are at Fort Carlton, about 400 miles from this, and where our winter quarters are. Captain Palliser had to return to the civilised world on business during the winter, and he left me in charge, with the work of engaging men, and making other preparations for our trip next year. To do this I have had to make a winter journey with dogs and snow shoes to this place, to see the principal factor for the Saskatchewan district, and shall have to continue on to the mountains before I return. I enjoy the winter travelling very much, although at first I found it rather hard work. I am in excellent health, and can stand the running behind the dogs famously. M. Bourgeau has made a very large collection of plants and seeds. A gathering of the gentlemen in charge of the various trading ports for the New Year's Day settling of accounts gave me an opportunity of making further inquiries about Mr. Jeffrey the botanist that you wished to hear about, and who has gone amissing. I have seen a gentleman who travelled up to the head water of the Little Fork of Frazer's River, on the west side of the mountain, and there he left him. Mr. Frazer, who was in charge of Jaspar's House at the time, says he came up in December, 1851, along with the winter express, and that he remained at this fort (Edmonton) till February, when he left to cross the mountains on snow shoes. He remained some time with Mr. Fraser at Jaspar's House, and then started to descend the Columbia along with Mr. Cleuston. I shall try and hear from the latter gentleman what became of him, but he is at present on the west side of the mountains. All say he proved a most expert and hardy traveller. The country here is wooded with Poplar and a few Pines (Abies alba). It is no long time since it was all prairie, but, as seems to be the case everywhere hereabouts, the woods are rapidly encroaching on the bare plain; so that places which were buffalo plains only thirty years ago are covered with a thick growth of Poplar (P. tremuloides). The country is divided into two districts by the woods, so well marked that it gives the character of a variety, not only to all the animals but even to the Indians. The traders talk of wood Crees and plain Crees; and they are quite distinct in their habits Then there are wood and plain wolves, buffalo, deer, moose, reindeer, and many other animals, all distinguished generally by the kind which inhabit the woods being the larger and of solitary habits. The margin of the wood country to the south seems to agree with lat. 54° in this longitude, but in long. 106° it begins to sweep to the S.E., and reaches lat. 50° at Red River, and even 48° in Lake Superior, S. of this line. Except close to the base of the mountain there are no woods, save on the N. and N.E. sides of hills, and in the river valleys on their banks that face the N. This is true with but few exceptions. At Carlton we have a rude observatory for magnetical and meteorological purposes, under Lieutenant Blackiston's care, and we all take part in making hourly observations day and night; so that the winter does not hang heavily on our hands. The weather as yet has been as unusually mild as last winter was severe. The deepest snow does not exceed one foot in this quarter; and in some places there is hardly enough to run the dog-sleigh on. The greatest cold as yet has been 17°. The general standing of the thermometer is 15° during the day, and 5° at night. I never feel it so cold as I did at home, although sleeping on the snow in the open air every night. Deferring the rest of my news, of which I have a large stock, until I return to Carlton, and wishing you a very happy new year, I remain, ever yours very sincerely, JAMES HECTOR."

GRAFTED RHODODENDRONS.—Grafting is the more general mode of increasing the stock of established favourites and new varieties. Some cultivators object to grafted plants; but we are satisfied, from long experience, that there is no valid objection to such if a suitable stock is used. We would as soon have a grafted Rhododendron, when united to a suitable stock, as a grafted Apple or a grafted Pear. But it is far otherwise when, from carelessness, ignorance, or greed of gain, unsuitable natures are united. Then debility and early death frequently ensue, and in such cases grafted plants are clearly of little value. As a rule, choose the stock as near in nature to the graft as possible. Grafting is best performed early in autumn, so soon as the young shoots become hard and solid. The simplest form of side-grafting answers every purpose. Pare through the bark, removing with it a thin slice of the wood from one side of the stock, the length of an inch; then pare one side of the scion so that it will lay flat and close upon the stock, binding the two firmly together with bast. Thus far accomplished, the plants should be put in a close frame, or beneath a hand-glass, for about six weeks, when such as have succeeded may be untied and wintered there, taking care to protect them against frost. On the arrival of spring they may be planted out in peat beds rather closely, that the foliage may shade the ground. When growth commences the stock must be checked by pinching off the young shoots, which will induce a vigorous development of the graft. But it is not yet time to cut away that portion of the stock left growing above the graft at the time the latter was laid on: wait till the summer's growth is finished, and then with a sharp knife and skilful manipulation, cut off the top of the stock in an oblique direction, immediately above the point of junction. Twelve months have now elapsed since the graft was laid on, and the result is, or should be, a perfect plant, in some instances with one or more flower-buds.—*Paul's American Garden.*

TROPŒOLUM LOBBI.—Many of the Tropœolums are useful and ornamental as winter flowering plants, and where great quantities of cut flowers are required in winter they will by and bye be considered indispensable. From three plants of Lobbi, four feet high and two feet in diameter, we cut hundreds of flowers every week—a great handful every day from December till the end of March. Being of a brilliant scarlet, the flowers mix up and contrast beautifully with those of Deutzia gracilis, white Azalea, etc., in small bouquets. At the end of March we allowed many of the flowers to run to seed, and since it has been gathered the plants have recommenced to grow most vigorously, and probably will be in a short time one mass of bloom, dazzling to the eye. Florists who supply the market with cut flowers will find that scarlet Tropœolums will amply remunerate them for the little attention they require. Plants do best from seed, but they will answer from cuttings. June and July are the best months to sow the seed, or purchase plants for flowering in late autumn and winter. They like a rich soil, and require one or two shifts before they are put into 13-inch pots, and of course a little artificial warmth in winter is necessary to keep the plant in continual flower. As the blossoms of Triomphe de Gand and others are larger and quite as bright a scarlet, they may be perhaps by some considered better than Lobbi. We are trying several varieties as out-door plants, and shall cross them with the old Canary Creeper, and *vice versâ.—A. Pettigrew, in Gard. Chron.*

IMPERIAL HORTICULTURAL SOCIETY, PARIS.—This society has announced its intention of holding a grand exhibition, open to all nations, from September 26th to October 3rd, inclusive. At the same time the Pomological Society, of Lyons, will hold its meetings in Paris, so that all persons interested in horticultural productions of every kind may expect a great treat. All persons desirous of exhibiting may obtain a copy of the rules on application to M. Rouillard, the Secretary, Rue de Longchamp, 28, Paris, and to whom notice must be given of the description of products intended to be shown, not later than the 20th of the present month.

RIGIDELLA FLAMMEA.—This extraordinary and very showy plant, which constitutes a genus entirely different from any previously described, was discovered by Mr. Hartweg, an active collector in the employ of the Horticultural Society, during the earlier period of his tours in Mexico, and safely transmitted to that body, in whose gardens at Chiswick it flowered in 1839. It is one of those remarkable floral objects which, while it arrests our admiration by the beauty of its blossoms, their vivid colour, and the prettily diversified hue of the anthers, demands more than usual scrutiny from the peculiarity of its structure, and the strange elasticity residing in its flower-stalks. The perianth, or coloured portion of the flower, is said to be destitute of a tube or petals, and curiously convolute at its base; its nerves contracting, and the whole rolling itself up in the manner of a screw after having been open a short time. The most noticeable feature, however, is the partially pendulous or bent nature of the peduncles during the period at which the flowers are in perfection, and their rapidly rising, when relieved from the compression of the decayed flower, to a purely perpendicular position. To the individual who derives pleasure from watching the processes of Nature, there is much that will afford amusement in this captivating plant. The astonishing quickness with which its flowers are developed—their progression being nearly visible to an attentive observer—and the equally apparent rapidity which marks their decline, immediately on the occurrence of which they twist themselves round, and after having fallen, allow the flower-stalk instantaneously to erect itself, deserve special and close examination. The weight of the blossom alone cannot be sufficient to occasion such a change in position; for the erectness is preserved while the seed-vessels are being matured, and the seeds must be as heavy as the withered flower. It is, doubtless, some beautiful contrivance for ensuring the due performance of a needful operation, which it would be worthy of the inquiring naturalist to ascertain and disclose. So far as it has hitherto been cultivated, it appears to require similar treatment to that given to the old and magnificent *Tigridia pavonia*, to which it greatly assimilates in habit. It may be grown with the greatest ease in a pot of loamy soil, mixed with a little heath-mould and sand, taking up the bulbs when the leaves have decayed, and repotting them towards the month of November. A greenhouse or cold frame will be quite hot enough. Most likely it will be found, from experience, that a pit or frame in which it can be planted, and annually removed, with a sufficient protection from moisture and frost at certain seasons, will be altogether the most appropriate. And it is even probable that plants of it will succeed in the open border, if they be slightly sheltered in autumn and winter. It is increased by offsets, which are not abundant, and the species is yet scarce.—*T. K. S.*

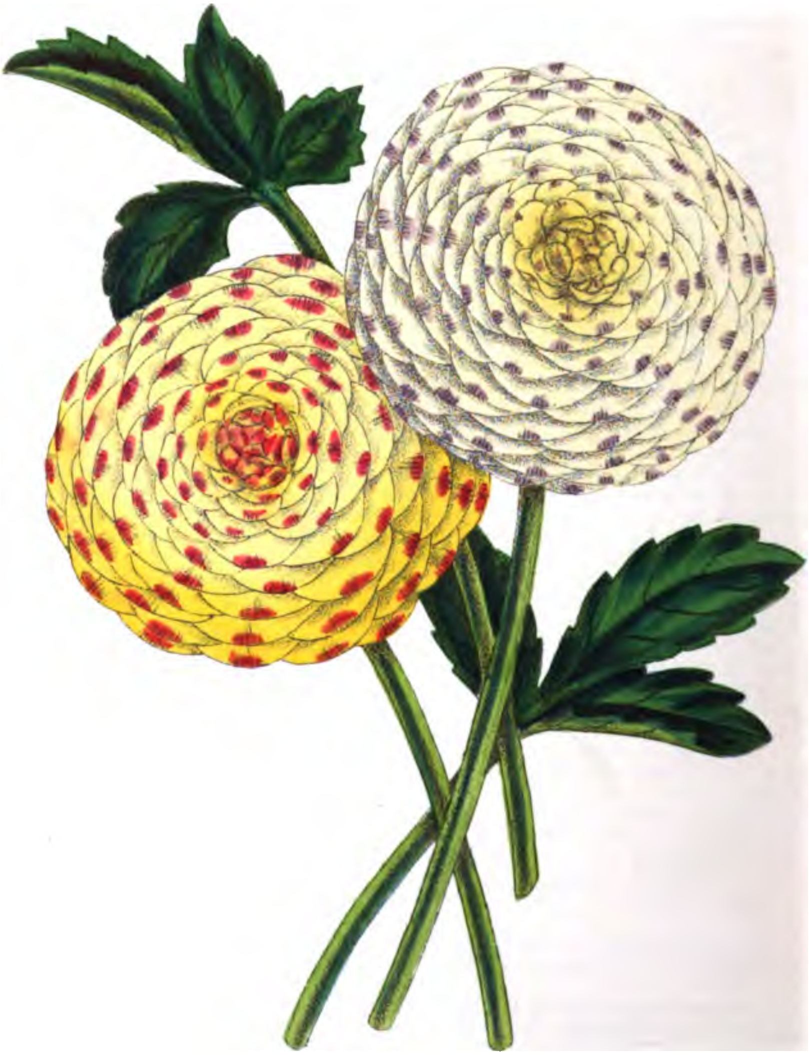
MANETTIA BICOLOR.—This is a gem of the first water, as it blooms almost continually through the winter. It does best in a warm greenhouse during that period, when in bloom; it is one of those plants that look extremely well when trained against a flat wire trellis, as the blooms look very handsome when thickly studded over such a surface. The compost most suitable for it consists of equal portions of loam and sandy peat. When the plant is growing, in summer, a little liquid manure may be given, not too strong; in winter the water given should be well aired. When done flowering, it may be pruned-in freely. The nicest plants for winter bloom are made from cuttings struck in March; choose some of the firm side-shoots, about three or four inches in length, and insert them in sandy soil, with about half-an-inch of silver-sand on the surface; water, keep a bell-glass over them, place in gentle heat, and shade them for a week or ten days, then place them in bottom heat, at about 70°, giving air at night by propping up the glass. When rooted, pot off, and as soon as the pots are filled with roots give a shift, and keep them in a hot bed. By the middle of June place the young plants in a cold pit, keeping them rather close till August, when they may have air and sun more freely. Remove them to a warm greenhouse by the end of October. This is one of those plants that will be found to amply repay by its abundant and beautiful bloom any trouble that may be bestowed upon it. And, besides this, it is as neat a climber as any that I have seen.—*R. P.*, *Leith.*

ON THE CULTIVATION OF ANAGALLIS MONELLI.—For flower beds or basket-work no plant is better adapted than this pretty little Italian Anagallis; but with it, as with everything besides, it requires treatment peculiar to itself to produce that effect which its beautiful blue flowers, and straggling but graceful habit is calculated to produce. It is too tender to endure our winters in the open air, and therefore requires the protection of a cold frame, or an airy part of the greenhouse. Propagation is readily effected early in spring, or if strong plants are wanted, it may be done in August. In spring, two or three inches are cut from the points of the tender shoots, these are carefully cut across with a very sharp knife, they are then inserted into seed pans or pots, in a compost of equal portions of yellow sandy loam, decayed leaf-mould, and sand. They are then well watered through a fine rose and allowed to stand in a shady place till the foliage has dried. As soon as this is the case they are placed in a cucumber or melon frame with a gentle bottom heat, and here they will generally produce roots in the course of ten days or a fortnight. Pots or seed pans of about six inches in diameter, with the same compost as before, are prepared, and in this the plants are thickly placed round the edges. If in spring, and the plants are intended for turning out into the flower-borders, they must be returned to the frame for about a week, and then removed to the warmest part of the greenhouse, but still kept in a grown state. About a week before they are turned out they should be placed in a cold frame, and fully exposed to the air during the day. For basket-work this very beautiful plant is superior to any in cultivation, or grown in small beds which are trellissed over a short distance from the surface. The slender shoots being then tied down on the trellis are prevented being injured, or the flowers sullied by the dashing rains throwing up the earth from the beds. The trellis should be made of peeled willow, or hazel rods; the thick ends being fastened in the earth at the extreme edge of the beds, and the tops neatly fastened and woven through each other at about five or six inches above the surface of the earth. This always has a very neat appearance.—*J. M.*

Lady Gardeners.—It is pleasing to know that there are some ladies, among the higher grades of society, who are enthusiastic in their pursuit of gardening. I have had the pleasure of being acquainted with two during my connection with horticultural pursuits in general, one of whom, I might consider not only as an adept in floriculture, but also a proficient in designing. I remember this lady having a spot of ground of about an acre, with a rivulet running through, at her disposal; and, what with twisting and turning it in various directions, enlarging some parts of it, and throwing over a rustic bridge or two at others, together with a moss-house and grotto, with various embellishments, and the walks so disposed as not to be seen from each other, by means of the judicious planting of the shrubs, rendered it one of the most interesting gardens of the kind that I ever entered. This lady was her own gardener, who, with a man at her disposal, was to be seen herself digging and delving daily in fine weather; doing and ordering all kinds of work necessary to keep the garden in the highest style of the art. Another lady of my acquaintance, equally enthusiastic, especially about flowers, is at work on all opportunities, about her plants; potting and repotting collecting and preparing the proper compost for each variety of the plants she has collected—"her pets," as she calls them. In the art of hybridizing she has been successful, especially with the Cinerarias, of which she has raised some beautiful varieties; her success also in the budding of Roses has met with its full reward, scarcely a bud having missed in this department of horticulture during her practice. Living in a neighbourhood where stocks are easily obtained from the hedges growing there, she manages to get them all of one height, namely, four feet, and is very particular in the selection of the sorts she chooses for budding. "Isabella Gray" is one of her favourites, among many others equally attractive, of the kinds belonging to that class of Roses; and the soil being well adapted for their growth, she has a splendid bloom of flowers, much admired by her visitors. Her Geraniums, limited as the collection is for want of room, are of the most choice kinds, selected with judgment and taste. On a visit to her last summer, I found her properly clad in a costume admirably adapted for the work she had in hand; she showed me many little ingenious contrivances, for saving her plants throughout the winter, her plant-house being too contracted for a large collection. This lady is not only an excellent floriculturist, but also excels in drawing; she presented for my inspection six beautiful large groups of flowers in water-colours, on cardboard, most exquisitely done, as the flowers and foliage might be considered as faithful portraits of the flowers chosen to form the groups; also in landscape drawing, both in water-colours and oil, she excels. I have a chalk-drawing of hers of Loch Lomond, in Scotland, which is much admired by almost every person who sees it. I have also a lithograph of hers of Stockbury Church, in Kent, very neatly executed; her proficiency on the piano is also of a high order. Still, in the midst of all these refinements, it appears that floriculture has a large share of her time devoted to it, and forms one of the most pleasing occupations to which she is attached. So much for lady-gardeners. I should like to see more notices of the kind in your *Cabinet*.—*T. Rutger.*

Gladioli.—I shall be much obliged if you, or any of your numerous correspondents, will give me the names and descriptions of a few of the best Gladioli, to flower in the greenhouse in pots.—*An Intending Cultivator.*

Hares.—To prevent hares destroying plants, the best plan is to place four white sticks, about ten inches high, so as to form a square or a lozenge-shape round the plants to be protected; then tie round the tops, from one to the other of these sticks, a strong white cotton thread, and a second thread about the middle of the stake. This makes a kind of fence into which hares and rabbits do not seem disposed to venture. I have also found this same thread plan effectual in preventing the thrushes and blackbirds getting the young seeds out of the ground. A cheaper preventive can scarcely be recommended.—*M. S.*



FIDELIA. FAIRY.

The Floricultural Cabinet.

OCTOBER, 1858.

ILLUSTRATION.

RANUNCULUSES.

Fidelia (*Tyso's*).
Fairy (*Tyso's*).

THE two Ranunculuses figured this month are seedlings raised by Mr. Tyso, of Wallingford, Berks, a gentleman who, as well as his father, our late respected friend, the Reverend Mr. Tyso, has devoted more attention to the improvement of this flower than any other person, so much so, that almost all the best flowers now grown were raised by him. In former numbers of this work we have had the pleasure to figure several of Mr. Tyso's best seedlings, and our only regret is, that we have not been able to give correct representations of many more raised by the same successful grower.

Mr. Tyso publishes an annual list of his best flowers, and as he takes particular care in keeping the varieties and names correct, intending purchasers cannot do better, so far as the Ranunculus is concerned, than apply to him.

* * *

ON THE CULTURE OF ALSTRÆMERIAS.

BY R. T. W. T.

BEING very fond of this genus, I began, three years ago, to turn my attention towards them. Being well aware that they require rest for a few months in the course of the season, I removed all my plants (which were *Hookeri*, *pulchella pallida*, *pelegrina*, *acutifolia*, *pelegrina alba*, *psittacina*, *edulis*, *Ligtu*, and a variety raised by a friend from Peruvian seeds) to a small pit in front of the pine-stove, giving them no water, till the earth about their roots got quite dry. As soon as they began to recover, I potted them in the size called forty-eights, and kept them then on a shelf against the back wall of the greenhouse, about three feet from the top lights; and, although I lost *Hookeri*, *pelegrina alba*, and *edulis*, I had the satisfaction of seeing the others thrive much better than they had done the previous year. I also took up, from the border in front of the stove, *tricolor* and *pulchella*, and gave them the same treatment. When the leaves began to decay, at the end of July or beginning of August, I withheld water, and allowed the plants to rest until the beginning of November, when they again began to vegetate. I then repotted them, and gave them every encouragement in rich mould, composed of loam, rotten dung, and leaf-mould, with a little sand: this I find to be the best compost for growing them in. As they filled their pots with roots, I shifted them progressively to a larger size, and had in June following the pleasure of them flowering, and I succeeded in growing *tricolor* to the height of two feet three inches, well covered with flowers. None of my pots the same season were larger than what are termed sixteens. When the flowering was over, and the leaves were beginning to decay, I again resorted to the plan of drying or resting the plants till the following November. I afterwards gave them the same course of treatment as before; but, as the roots had attained a greater degree of strength, the size of the pots was enlarged, until some of the stronger varieties were planted in sixes. During the time of growing, I keep them on a shelf, or trellis, in front of the greenhouse, having upright lights about five feet high, and I give them plenty of air, carefully avoiding the least application of heat, which would draw them up weak, cause the flowers to be much smaller, and very much injure their colours. By these means I have had them continue in good bloom for more than a month.

ON BLOOMING SOLANDRA GRANDIFLORA.

BY AN OLD SUBSCRIBER.

THIS splendid exotic, so freely propagated by cuttings, is to be found, perhaps, in most of our stoves, but, owing to mismanagement, its magnificent and odoriferous blossoms are but too seldom brought to perfection. The following mode of culture may therefore be of service to some who are in the habit of reading your Magazine:—It is well known that the *Solandra grandiflora* will grow many feet in height in one season, if under good cultivation and left to its native luxuriancy. When the plants under my care have attained the elevation required, which is about three and a-half feet, I prevent them from growing higher by nipping off the tops of the shoots, and, when the plants have arrived to the size desired, all the laterals are served in the same way. By adopting this mode, the plants throw out a vast number of spurs, which is a great object in the cultivation of the Solandra, and the plants assume a fine bushy shrub-like appearance. Early in January they are turned out of the pots, a part of their balls is removed, and they are repotted in compost of one-half rich loam, one-fourth peat, and one-fourth well-decomposed leaf-mould. The pots used are twelve inches in diameter. Little or no water is applied until there are indications of a movement in the sap. The plants are then slightly watered, increasing the quantity as the shoots advance, with water kept at a temperature nearly equal to that of the stove, which at that season of the year is from 55° to 60°. By the middle of January the young shoots, together with the flower buds, begin to appear, when regular and rather plentiful watering is continued till all the buds have perfected their blossoms, always remembering to use warm water; for if cold water be used at this particular season it will cause every bud to drop, and thus ruin all. All young shoots, not bearing blossom buds, when about two inches long, are shortened to one inch from their base as often as they appear.

By this treatment one plant under my care has produced no fewer than sixty of its beautiful blossoms this season, many of the spurs having two, and some three flowers on each spur, the flowers delightfully succeeding each other for the space of six weeks or two months.

The stoves under my care being low, I am necessitated to confine the plants to the above height; but in houses of an elevation to admit plants of six, eight, or more feet in height, if grown and flowered with the above success, the effect would be imposing, and highly gratifying to the persons who might succeed in bringing them to such a high state of perfection.

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ON PRESERVING TENDER OR HALF-HARDY PLANTS.

BY ALPHA.

AS the *Cabinet* falls into the hands of a great number of amateurs and others who make floriculture and the management of a flower-garden their chief recreation, and now that the system of bedding-out, or massing, is so popular, it may not be out of place to offer a few timely remarks on preserving half-hardy plants through the winter with little expense or trouble. The structures in which tender plants are usually protected from frost are greenhouses, glazed frames, and pits with opaque coverings of various kinds. When cheapness is an object, the latter method is mostly preferred, and for many kinds it is found to answer very well. Pits of this kind may be erected in a variety of ways, depending on the taste of the operator and the materials at his command. Supposing the width to be determined at five feet—the walls may be built either of brick or stone; if the former be used, five inches, or a brick in breadth, will be the proper thickness for the front, and nine inches for the back. The height will depend on the size of the plants, but fifteen inches in front, and four feet at the back, will be found a convenient and useful height. The wall-plate or frame-work, secured to the top of the brick walls, may be made of what is termed "*three-inch scantling*." The rafters should be fixed flush with the frame-work, at two feet eight inches apart; on this wood shutters are supported, and these may be made of half-inch boards, held together by two or three cross rails fixed to the back. When the whole is completed, the wood-work ought to be well primed with red lead and linseed oil, and finished with a slate or stone colour. The length of the pit can only be determined by the quantity of plants which it is intended to contain.

The situation is by no means an unimportant consideration, and a moderately sheltered sloping bank, with a southern aspect, is the most desirable. Unless the sub-soil be very dry, the bottom of the pit ought to be well drained, and every possible means taken to guard against damp.

Much of the success of preserving the plants through the winter depends on the time and mode of lifting the plants from the open ground. It is, of course, desirable to leave them in the borders and flower-beds to as late a period of the season as possible, but they ought never to be allowed to remain there until partly injured by frost; whenever this is the case, the cuticle, or outer bark, becomes susceptible of the slightest bruise, and this is quickly followed by disease, which, under the best management, often defies the preservation of the plant. All plants intended to be preserved through the winter in a cold frame ought to be lifted before they are in any way affected by frost, and, however far it may differ from the usual practice on such occasions, I would strongly impress the necessity of forbearing to cut, even a single branch, wherever it is possible to avoid it. Plants, under any circumstances, will lose a great portion of their leaves from the operation of lifting. The roots being also injured, it is necessary to place them either in the greenhouse or in some close shady situation, there to be excited to throw out a few fresh leaves and roots to enable them to make an effort to repair whatever injury they may have sustained by lifting—*a circumstance in the preservation of plants of much greater importance than is usually attached to it.* There are, indeed, but few plants, however hardy they may be, that can support life for any length of time, having had their roots previously cut and afterwards immersed in a pot of wet soil, without sufficient warmth to produce growth, by which the wounded parts can be healed. The soil in which the plants are potted ought, on all occasions, to be dry and rather light and sandy; the pots into which they are placed should be rather small than otherwise, and the soil made very compact and firm. This will apply to many of the larger kinds of woody greenhouse plants, and the tenderest sorts of Geraniums. The stronger growing kinds of Geraniums require very different treatment, which shall be noticed more in detail hereafter. I will now suppose that the whole of the bedding plants (as they are usually termed) have been lifted and kept in a growing state for at least a fortnight or three weeks, they may then be gradually inured to the air, both night and day, except during frosty weather. Towards Christmas many of the leaves will have dropped off, the pots may then be placed as near to each other as their sizes will allow, exposing them, upon all occasions, to the full influence of the air. To preserve plants in an inactive, dormant state, a principal point to be attended to is, the mode of watering them; no more ought to be given than just sufficient to keep the leaves from drooping, and this ought to be adhered to with scrupulous attention. Plants kept in cold pits rarely require watering more than once in three or four days, and often only once a week, and sometimes even at greater intervals.

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ON THE MANAGEMENT OF THE CACTUS TRIBE.

BY A SUCCESSFUL CULTIVATOR.

THE compost that I use consists of an equal quantity of light turfy loam and pigeons' dung, and one-third sheep's dung, exposing the mixture one year to the influence of the summer's sun and winter's frost to mellow. When wanted for use, I add one third of sandy peat, in both cases mixing them well together. I grow the young plants, from February to July, in the forcing flower-house, kept from 55° to 60° Fahrenheit; I afterwards remove them to a shelf in an airy situation in the greenhouse exposed to the mid-day sun, giving them plenty of air, and little water. The plants that I want to flower the following September are placed in the forcing-house the first week in December, giving them very little water for the first ten days, and gradually increasing the water as the plants advance in growth. About the first of February, I stop all the young shoots, which soon become well ripened: from this time I decrease the quantity of water until they become quite dry, in order to throw the plants into a state of rest: in the beginning of March, I replace them in a cold shady situation in the greenhouse, keeping them quite dry until the following June, when I put them again into the forcing-house, treating them as before. For plants to flower in August, I place a quantity more in the forcing-house the first week in January, treating them the same as those for

September; only they are put to rest in the greenhouse a fortnight later, and replaced in the forcing-house one week sooner.

The first flowering plants are put in the forcing-house the end of January, and will come into flower about the middle of March. When these plants have done flowering and are removed from the drawing-room, or greenhouse, I prune out most of the old shoots that have flowered, so that the plants are furnished regularly with young shoots for flowering the ensuing year: these plants are also placed in the forcing-house for ten days, to ripen the young wood and dry up the moisture, and are then to be put to rest in the greenhouse as usual: such plants will flower a second time in October; others, put in the forcing-house the middle of February, will flower about the end of April: if then pruned and dried and put to rest as before, they will flower a second time in November, and so on in proportion. I repot them at all seasons whenever the plants may require it, always observing to keep the pots well drained with potsherds, that the moisture may pass off readily. This process may be considered troublesome; but superior growth, and abundance of flowers, amply repay the care bestowed. By the above treatment the *Cereus speciosus* and *Jenkinsoni* have generally produced from ninety to a hundred fine expanded flowers at one year old. I prefer growing them in wooden tubs, with wire stakes fixed to the tub, to the usual mode of supporting them by stakes driven into the ball of the plant, which always injures the fibrous roots.

ON THE CULTURE OF NATIVE ORCHIDEÆ.

BY CLERICUS.

IN a former volume, I gave a short outline of the treatment which had suited some of the native *Orchideæ*, which I had then under cultivation. With the experience obtained in occasionally cultivating this interesting and singular tribe of plants since that time, I have still found it the best that has come under my observation. Since the former communication, I have had under cultivation, *Goodyera repens*, *Listera cordata*, *Liparis Lœselii*, *Ophrys fucifera*, and *Gymnadenia albida*. The three first-named species were potted in very sandy peat, using plenty of drainage in the bottoms of the pots. They were placed during summer in a cool, shaded situation, and during winter were placed in a cold frame. The *Goodyera* has several times flowered, and also allowed of increase, and the other two flowered several seasons. The *Ophrys fucifera* and *Gymnadenia albida* were potted in peat, loam, and sand; and were placed in the same situations as the others, both in summer and winter. The *Ophrys* flowered for two seasons; but I never succeeded in flowering the *Gymnadenia*, as it was a very small bulb when received, but was preserved for three years. I have also attempted to cultivate the rare *Corallorhiza innata*, but without success. In commencing the cultivation of the native *Orchideæ*, it is essential to their after progress, that, in collecting them from their native habitats, the bulbs should be got up carefully, and with as much of the fibres terminating the bulbs as possible; this has also been recommended by another of your contributors. In most cases this must be done when they are in flower, as they are not easily recognized at other times; and, fortunately, they succeed very well when collected during the flowering season. The whole of the soil must be carefully removed from their bulbs before planting, whether they are to be potted or placed in the open ground. I have always observed that those bulbs which had been planted with a ball of earth have soon died off, apparently from the ball becoming either too compact, or else sour, from being of different ingredients from the earth in which they were planted. Were the Horticultural Societies to offer a good premium for collections of native *Orchideæ* that had been under cultivation for not less than two years, say, to be competed for in 1859, it is very likely that some of the excellent growers of plants around London would commence cultivating them with spirit, which would eventually, perhaps, lead to more general cultivation.

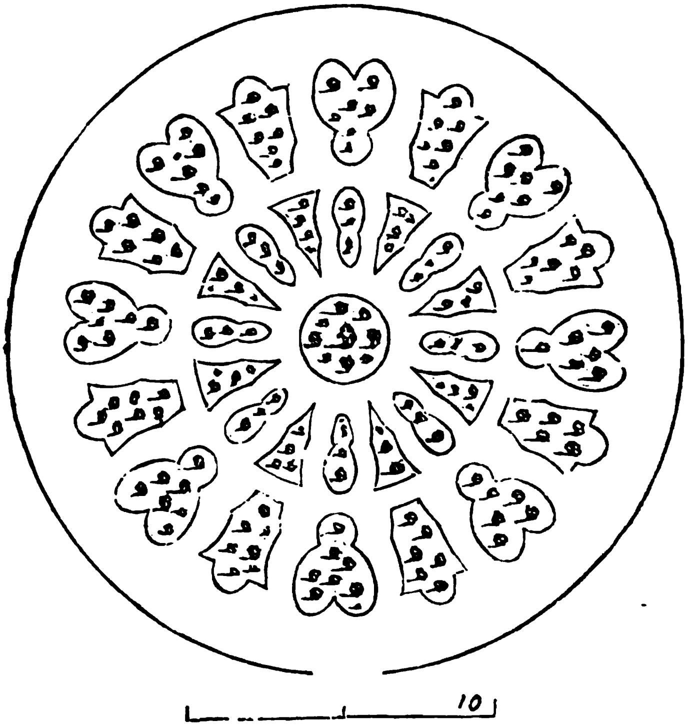
ON THE CULTURE OF BIGNONIA VENUSTA.

BY R. T. W. T.

IN the back corner of my bark-bed two plants of this splendid climber for the hot-house are planted, in a mixture of leaf-mould, sandy loam, and peat soil, and the roots have the whole run of the bottom of the bark-bed in a shallow layer of rotten tan, which is never disturbed when the tan is removed or turned over. The shoots are trained under the glass, close to it, and now cover more than four to five hundred square feet of surface. This handsome plant continues in bloom from the end of October to the middle of February; after which time I cut it back to a single stem, about six feet long. From the point where it is cut back, young shoots push forth abundantly, and three or four of them are selected for training, the others being rubbed off, always selecting the strongest and most promising ones for training. When young plants are wanted, the shoots are taken off when from six to nine inches long, and they strike root very speedily in any light soil, in bottom heat. By a system of frequent shifting, the young plants are grown to a large size the first season; plenty of room, by a liberal shift, being required each time.

DESIGN FOR A CIRCULAR FLOWER-GARDEN.

BY T. RUTGER, ESQ.



THE simplicity of the design here given may render it less attractive than some others which have appeared in the *Cabinet*. The sameness in the delineation of the beds may be considered of a too common-place order to court the attention of the floriculturist, still with a judicious arrangement it may, I think, be made interesting.

The beds are to be laid down on gravel, with Box edgings, or some other material, and in order to give variety, I should propose the outside beds of the circle to be alternately laid down with turf, and a dwarf evergreen shrub or two introduced thereon, in accordance with the size of the beds. The inside circle of beds I would recommend to be furnished, in alternate succession, with flowers in mass. The circle in the centre, if not devoted for a basin with gold and silver fishes, might be appropriated as a site for a circular-covered seat, raised on a mound, and the pillars for supporting the roof be decorated with choice creepers. Then, as a ladies' parterre, it perhaps may be thought sufficiently interesting to claim some attention; and the whole, if surrounded with a neat shrubbery and a grass verge, would form a nice secluded retreat for the lady floriculturist.

CRYSTAL PALACE—SEPTEMBER EXHIBITION.

THE third display of flowers and fruits at the Crystal Palace on Wednesday and Thursday, September 8th and 9th, and, as always has been the case with the Exhibitions held under the People's Palace of recreation and instruction at Sydenham, it was a very successful one. The principal attractions were the Dahlias and Fruit, although there were some beautiful collections of stove, greenhouse, and miscellaneous plants besides. The fruit was unusually abundant.

To commence with the Dahlias—We are sorry to observe that they were not so numerous as on former occasions, neither was there anything strikingly good in new varieties. The first prize for fifty dissimilar varieties was awarded to Mr. Turner; they were large, very even in size, and all of the finest quality, and consisted of—Robert Bruce, Cherub, Touchstone, Goldfinder, Commander, Pandora, Lord Eversley, Mrs. Church, Lord Fielding, Lord Palmerston, Lady Franklin, Village Gem, Mrs. Legge, Major Fellowes, Lord Cardigan, Triomphe de Pecq, Lollipop, Grand Sultan, Marchioness of Aylesbury, Deutche Würde, Miss Pressly, Sir Henry Havelock, Peerless, Brentford Hero, Venus, Emperor, Admiral Dundas, Hon. Mrs. Trotter, Standard Bearer, Lord Bath, Sir John Franklin, John Dory, Midnight, Miss Watts, Royal Scarlet, Beauty of Slough, Lady Paxton, Duchess of Beaufort, Colonel Windham, Saturn, Shaded Perfection, Sir Joseph Paxton, Sidney Herbert, Miss Burdett Coutts, Harbinger, Satirist, Yellow Beauty, Lady Popham, Sir F. Bathurst, and Perfection. Mr. Keynes, of Salisbury, was second. In the Amateur Class, for twenty-four Dahlias, Mr. Dodds, gardener to Colonel Baker, Salisbury, was first with Lord Palmerston, Sir Colin Campbell, Mr. Critchett, Pandora, Alice Downie, Edmund, Lord Bath, Miss Hay, Hope, Rachel Rawlings, Lollipop, Miracle, Mrs. Turner, Pre-eminent, Mrs. Legge, Sidney Herbert, Miss Burdett Coutts, Lilac King, Lady Franklin, Sir Joseph Paxton, Colonel Windham, Lady Mildmay, Mars, Duchess of Beaufort; second, the Rev. C. Fellowes, Shottesham Rectory, near Norwich. In Fancies, Varieties, Mr. J. Keynes was first with blooms of the following twelve kinds:—Charles Perry, Triomphe de Roubaix, Impératrice Eugenie, Favourite, Oliver Twist, Lady Paxton, Jessie, Comus, Carnation, Duchess of Kent, Marc Antony, Conqueror; second, Mr. C. Turner, with Baron Alderson, Duchess of Kent, Carnation, Comet, Triomphe de Roubaix, Pigeon, Oliver Twist, Miss Frampton, Lady Paxton, Mrs. Hansard, Gloire de Kain, and Marc Antony.

Of new kinds we noticed the following:—Green's Magnum Bonum, a deep purple crimson, very full, and well up in the centre; Green's Splendid, pale pink, striped with crimson, rather a low eye —had a certificate; Windsor Rival, a small flower by Mr. Turner, tolerable form; Hebe (Church), white, tipped with light purple crimson, rather loose petals; Ganymede, salmon, with yellow tip, good form, and a full flower; Signet, pale peach, with a light centre, rather small. We noticed also Mr. Kimberley's three seedlings, named, singularly enough, Faith, Hope, and Charity. Faith is a light crimson purple, striped and spotted with deep maroon, with wide, rather angular petals; a third-rate flower. Hope is light salmon, spotted and striped with red and dark crimson; second-rate. Charity, salmon red, tipped with light flesh, and striped with maroon-crimson. Mr. Wheeler, of Warminster, showed Bacchus, a seedling of 1857, the ground pale flesh, or light blush, edged with red; rather low in the eye; Countess of Derby (Dodd), light purple or lilac purple, spotted and striped with dark crimson, rather loose in the petal; Lady Hulse (Dodd), lilac purple, spotted and striped with crimson red, a very soft petal and low eye; Jessie (Dodd), a deep golden yellow, with crimson stripes, tolerably good; Lord Stanley (Dodd), lilac purple, with deep crimson stripes; Mary Lander (Dodd), a very neat flower, blush, tipped with light purple, delicate; Madame Alboni (Dodd), pale lilac edged with purple crimson, low eye, and wanting in form; Fisherman (Dodd), light purple, a full flower, but, like the last, wanting in form and substance. Mr. Salter had a seedling named Egerie, which had a certificate; it was a light salmon, well cupped, and good outline. Mr. Keynes showed Comus, a pale salmony-crimson, richly striped and edged with deep crimson and maroon; Dandy, a light blush, spotted and striped with deep crimson, rather small, and defective in the eye; Jessie (Dodd), deep yellow, striped and spotted with bright crimson, a soft, rather shallow petal; Golden Drop, a light yellow, good size and outline, tolerable petal, but rather soft, and the eye a little depressed; Mrs. Keynes, light purple, very full, but a soft petal; Grandmother, orange red, a good deep flower; Rosebud, very good, a fine light purple; Mr. Rawling's Daughter of the Morning is a dull salmon-pink, incurved, and very soft in the petal.

Fuschias were exhibited in excellent condition by several growers. By far the best, however, was a collection from Mr. Webb, of Tulse Hill. These were from seven to eight or nine feet high, and charmingly clothed with foliage and flowers to the very pot. Among dark sorts were Marquis of Bristol, a bold striking kind; Nil Desperandum, and Incomparable. Light kinds consisted of Venus de Medici loaded with flowers, Duchess of Lancaster, and Pearl of England. Other collections, though good, were greatly inferior to this.

German and French Asters were truly beautiful. The cultivation of these as exhibition flowers is rapidly improving, as shown every successive year. The German were very neat, and rather more perfect as regards form than the French, although the latter are much larger blooms, and of every shade and tint of colour excepting yellow.

Among cut flowers, in addition to Dahlias and Asters, were Roses, Hollyhocks, and Verbenas.

Among Messrs. Pauls' Roses were blooms of Isabella Gray, better expanded, and richer in colour than those at the Cheshunt Nursery about a fortnight ago.

Of Japan Lilies there was a great display, but little variety among them, yet all were well grown and beautiful specimens. The exhibitors were chiefly Messrs. Gaines, Laybank, Brown, Matthews, and Higgs.

Balsams, especially those in the best collection, were extremely well grown. Their flowers were large and double, of all shades of colour. They came from Mr. Green, gardener to Sir E. Antrobus, Bart. Others, though not so large, were all examples of good cultivation.

Scarlet Geraniums were exhibited in considerable quantity from the neighbourhood of Croydon, Brompton, and Dulwich, and being set closely together they made a good display. Among them there was nothing new. They consisted of Punch, Tom Thumb, Brilliant, Cerise Unique, Trentham King, Lady Middleton. Among pink and salmon sorts the best were Lucia Rosea and Kingbury Pet.

The Cockscombs were numerous and extremely well grown, especially those shown by Mr. Savage, of Edmonton. The combs of these measured eighteen inches in length, and from eight to nine inches across; the plants on stems from twelve to fourteen inches, and very healthy.

Achimenes were furnished in tolerable abundance; but there was apparently nothing new among them. Of scarcer varieties Meteor is one of the most brilliant.

Hollyhocks, which were shown both in spikes and cut blooms, were rather past their best.

Among Cape Heaths there was nothing requiring special remark.

In Verbenas one named Brilliant seemed an excellent kind for pot culture. Among Scarlets it was the most striking.

Mr. Standish, of Bagshot, brought a collection of Gladioluses, all of them varieties of *Gandavensis*, and very fine. An interesting novelty was shown by Mr. Bragg, of Slough, being a new Sunflower, very full of small petals, and destitute of the large seedy eye; the size very considerable and colour rich orange yellow. We understand it is an introduction from some of the Continental nurseries.

We come now to the general collections of stove and greenhouse plants. Among these we noticed Pitcher Plants from Messrs. Veitch and Son, and from Mr. Gedney, gardener to Mrs. Ellis, of Hoddesdon, all well grown specimens. They comprised *Rafflesiana*, *Lævis*, *Ampullacea*, *Sanguinea*, *Phyllamphora*, and others.

Orchids were not numerous. They came from Mr. Gedney, Mr. Carson, Messrs. Jackson, Mr. Woolley, and Mr. Hamp. Among them were *Cattleya granulosa*, the blue Vanda, a handsome plant at this season; some good *Saccolabiums*, and *Aerides*. From Mr. Gedney was a fine plant of the lovely terrestrial Cape Orchid *Disa grandiflora*. This was stated to have been in bloom since the 1st August.

Of novelties, the most interesting perhaps were some remarkable hybrid Orchids from Messrs. Veitch, which were raised at their Exeter nursery. They consisted of *Calanthe Dominii*, a cross between *C. veratrifolia* and *C. Masuca;* this was named after Mr. Dominy, their foreman, who is the first who has hybridized Orchids successfully in this country. In addition to this there were also four *Cattleyas*, hybrids from *C. granulosa* and *C. Harrisoniæ*, which, as well as the *Calanthe*, partook of the characteristics of both parents. Messrs. Veitch also sent a plant of *Lapageria rosea*, which was trained in an umbrella form, and well furnished with its beautiful waxy crimson flowers, seventeen in number.

Ferns were generally good as well as numerous, there being not less than 12 collections of Exotic species, and 4 collections of British kinds, independently of two sets of 20 species exhibited in competition for a silver cup, value £5 5*s*., presented by J. T. Stainton, Esq. This prize was fairly won by Mr. Baillie, gardener to W. C. Carbonell, Esq., whose plants though hardly equalling those of his opponent on the score of rarity were brought it much better condition. Among the other collections of British Ferns, that from Mr. Sim, of Foot's Cray, Kent, was placed first; it contained many rare varieties and some well-grown plants. One of the most remarkable both for beauty and novelty being a sport raised from *Lastrea Filix-mas, cristata*, and called *cristata angustata*. In the class for Exotic Ferns, Mr. Baillie, gardener to W. C. Carbonell, Esq., was placed first in the amateur's section, and Mr. Veitch, of Chelsea, first among the nurserymen. This latter collection was the best in the exhibition, and contained fine plants of five kinds of *Gleichenia—flabellata, dichotoma, dicarpa, microphylla*, and *speluncæ*, besides a *Cyathea medullaris* and *Dicksonia antarctica* of large size and in excellent condition. Mr. Carbonell's collection contained a very fine *Nephrolepis Davallioides*, some good *Cheilanthes*, etc. There was little novelty in the other collections, though many well grown specimens. A charming novelty, however, in the shape of a fine plant of the *Nephrodium molle, var. corymbiferum*, noticed some time since in our pages, was exhibited by Mr. Sim, of Foot's Cray, and fully justified all that has been said of its beauty. There were several good collections of *Lycopods*.

Variegated plants were shown in good condition from Messrs. Jackson of Kingston, Mr. Bunney of Stratford, and by Messrs. Young, Oubridge, Rhodes, Summers, and Hamp. Among the sorts were *Tillandsia zebrina, Hoyas, Cissus discolor, Dioscorea discolor*, *Dieffenbachia, Crotons, Hydrangeas, Sansevieras, Marantas, Yuccas, Caladiums, Aspidistrums, Coleus Blumei, Pavettas, Tradescantias,* and *Begonias.* Among the last there are now some charmingly variegated-leaved kinds.

Of plants remarkable for fine foliage. the best collection came from Messrs. Jackson. It consisted chiefly of Palms, intermixed with such plants as *Monstera pertusa,* with singularly pierced leaves; *Cycas revoluta, Dasyliriums, Berberis furcata,* and Screw Pines. From Mr. Bunney and Mr. Young of Dulwich also came collections. Mr. Carson showed two nice plants of the red-leaved *Dracæna nobilis.*

Collections of miscellaneous plants were shown by Mr. Peed, gardener to T. Tredwell, Esq., of Norwood; Mr. Rhodes, gardener to J. Philpotts, Esq., Stamford Hill; Mr. Page, gardener to W. Leaf, Esq., Streatham; Mr. Carson, gardener to W. F. G. Farmer, Esq., Cheam; Mr. Kaile, gardener to Lord Lovelace; and Mr. Hamp, gardener to J. Thorn, Esq., South Lambeth. These collections consisted chiefly of *Allamandas, Vincas, Ixoras, Cyrtoceras, Croweas,* and Heaths. Of plants not so often met with we noticed *Leptodactylon Californicum,* a purple or rather pinkish lilac Phlox-like plant, introduced by Messrs. Veitch. Its flowers were bright and showy, but it has the fault of having a somewhat rusty-looking foliage. Of *Vallota purpurea* there were some fine specimens, especially one in Mr. Carson's collection. It had eight flower-spikes, each of which was surmounted by from three to five lovely scarlet blossoms measuring quite three inches in diameter. Of this fine old plant there was also a good specimen from Miss Dolphin, of Sydenham. Some pretty bushes of *Pleromo elegans* were beautifully in flower, and we also noticed a good plant of *Meyenia erecta,* a very charming plant for the greenhouse, now becoming well known.

Fruit and vegetables, and fruit trees in pots, were excellent and very extensive.

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ON THE CULTURE OF THE PELARGONIUM.

BY THE FOREMAN OF A LONDON NURSERY.

TO obtain fine specimen plants of the Pelargonium is the object of every cultivator. To this end much depends, I am persuaded, on the proper time at which cuttings are put in. The results of my experience confirm me in the opinion that the second week in February is the best period. Short, stiff shoots, make the best plants, and they should be cut clean through at a joint, the adjoining leaf being taken off, leaving three buds with their leaves on each cutting for breaking. I find it best not to top the cuttings.

For putting cuttings in, the best soil is equal parts of leaf-mould and sand, finely sifted; two-inch pots are the most suitable and convenient. As soon as they are inserted the soil should be firmly pressed round them, and a good watering given. They should then be taken to the propagating house and covered with glasses. Very little bottom heat is necessary, or even advisable, so that if there be no convenience of a propagating house they will do well enough in the greenhouse. Too much care cannot be given to keeping the glasses dry, for damp is the ruin of Pelargonium cuttings: let them be well wiped and dried daily, therefore. Shading is necessary until they have commenced root-making, so as not to allow the cuttings to flag. By this means they will generally root in three weeks or a month. After they are sufficiently rooted, remove the glasses and place them in a shady place in the house to harden them gradually. By the middle or third week in March the plants will all be sufficiently hardened off and well rooted, so that it will then be time to give them encouragement by a shift, using four-inch pots. The most suitable soil is one of a rich open texture; I never employ any other than the following:—One-half rough turfy loam, and the other half equal parts of cow, pigeon, and stable manure two years old, leaf-mould and river sand, well incorporated and sifted. To a bushel of the above I add a bushel of bone dust. In shifting it is well to place the plant no deeper in the pot than it was before, and to loosen the fibres at the bottom of the ball; after potting they should have a good watering overhead, and the plant should be topped, leaving about three eyes to break from, and then place them in an airy place, as close to the glass as possible. If all goes on well, by the second week in June the plants will be ready for a second shift, and should this time be potted in six-inch sizes, with the same soil as before; all the shoots should be cut back to two or three eyes, and tied out neatly; this is a great point in securing handsomely-formed plants. At this time the plants will do better in a cool frame, or a light raised a few inches from the ground. When the weather is dry, the sashes should be drawn off in the daytime, but always shut up at night. By the second week in August the plants should be repotted again into eight-inch pots, and then taken back to the house. At this shift the summer shoots should be tied out, leaving one or two to fill up the centre; after being tied, they should all be stopped again to two or three eyes, and disposed so as to make the plant as uniform as possible; at the same time it is necessary to place the plant as near as possible to the glass, and allow them plenty of room. If the weather be favourable, air may be admitted freely till towards the end of the month. This will prevent the plants being drawn up weakly, which would happen if the house were kept close, especially immediately after the plants are taken in from the cold frame.

When winter approaches great care must be taken to keep the frost out; when frosty weather or cold winds occur the house should be shut up, but all air must be admitted on favourable occasions. At night I never allow the temperature to fall below 42°. If, through a continuation of frost, a good deal of artificial heat is required at night, the plants will be much benefited by a sprinkling overhead in the mornings, the water being previously aired by being allowed to stand in the house over-night. As it frequently happens that there is a continuance of damp or wet weather at this season of the year, a little fire heat in the daytime, whilst air is admitted, will greatly assist in drying the house. If thus managed during winter, the plants will make fine blooming specimens in the course of the succeeding summer. If it be required to bloom the plants in June, the shoots will require to be tied out and stopped in January; but if not wanted till July, February will be soon enough. The central shoots may be allowed a little more extra length than the side ones to form a domical head. If, however, a flat head is desired, they may be regulated as required. The plants will be ready for a shift into their blooming pots by the middle of March. The proper size for this purpose is not less than twelve or fourteen inches, and the soil the same as before described. As soon as the flower-buds begin to make their appearance, a regular system of training will be necessary. The outermost shoots should be fastened down, and the others properly arranged; and if this be judiciously managed, the plants will make handsome specimens in June, some of them four feet across, and half as much in height, with healthy, fine green foliage, and very numerous trusses of bloom. When intended for exhibition purposes, a gauze covering should be put over, to keep off bees and other insects, and shading is required to preserve the colour of the bloom, which otherwise is liable to sustain much injury by the sun.

In cultivating the Pelargonium, much of the success obtained will depend on watering the plants properly. If this element be administered "little and often," it generally happens that the soil is wetted on the surface for days in succession, whilst that around the roots is almost absolutely dry. On the other hand, when too constant and large a supply is given, the ground becomes, as it is termed, "sour," especially if given immediately after a shift. The best plan is to water well, and give plenty of drainage to the pots. I generally give little manure water, and this considerably diluted, and just before the bloom is expanding. The green-fly is the greatest annoyance the cultivator of the Pelargonium has to contend with. Whenever, therefore, the fly makes its appearance, shut up the house at once, and give the plants a good fumigation of tobacco. Attention is more particularly necessary just previously to the plants coming into bloom, as smoking the plants when *in bloom*, not unfrequently, and if thoroughly done, always, causes the blossoms to fall off, and then the plants are not again covered with flower for some little time; through want of attention in this respect, I have known several intending exhibitors disappointed.

GOLD AND SILVER FISH.

BY MR. B. TAYLOR, SUDBURY.

AS an ornament in gardens or pleasure-grounds, a fountain and basin, or small piece of water, stocked with gold and silver fish, is generally admired, and, I think, justly so, especially when we consider the exotic appearance and great beauty of these species of the finny tribes. I seldom see them disporting in their own translucent element without considering their "culture" an index of refinement and taste. Although, perhaps, not directly connected with the pursuits of gardening or flowers, yet there being now so many persons who keep them in the house, along with favourite plants, ferns, etc., or in their grounds, and as their management is but imperfectly understood by many, a few words on this head may not be out of place in your widely-read and pleasant *Cabinet* of flowers and floriculture.

These beautiful kinds of fish are varieties of a kind of carp (*Cyprinus auratus*), natives of China. There are indeed so many different kinds belonging to this species, that M. de Sauvigny published a work (*Paris*, 1780), in which he gave coloured representations of eighty-nine varieties, of every different shade of gold, silver, orange, brown, and purple. They vary also in their tails, which are sometimes double, and sometimes triple; and in their fins, which are much longer and larger in some varieties than in others. The gold fish was first brought from China to the Cape of Good Hope by the Dutch, about 1611; and a few specimens were soon after purchased at an enormous price by the Portuguese, who appear to have first brought it to Europe. The Dutch continued for some time to sell their fish at exorbitant prices; but, breeding rapidly in Portugal, the Dutch soon lost their monopoly, and the Portuguese for many years supplied gold and silver fish to the rest of Europe. Even so late as the middle of the last century, gold fish were regularly imported from Portugal in large earthenware jars, like those now used for grapes. It has been said, even by recent authors, that gold fish were first introduced to this country in 1691, and that the first account we have of their being kept at any particular place goes no farther back than 1728, when the Duke of Argyle had some at Whitton, near Hounslow. This is an error, however, as I recently discovered when reading interesting, chatty old Pepys's diary; the entry is this:—"1665, May 28th. To see my Lady Pen, where my wife and I were shown a fine rarity; of fishes kept in a glass of water, that will live for ever; and finely marked they are, being foreign." The idea, or rather fancy, entertained by the sight-seeing Mr. Pepys, of "fish that will live for ever," will now excite only a smile, although it appears to have excited the old gentleman's wonder, credulous as he was. In France, the first seen are said to have been sent as a present to Mademoiselle de Pompadour, about 1730; when the French courtiers were so enchanted with the splendour of this new kind of fish, that they called it *La Dorade de la Chine*, a name it still retains throughout France. The French have, however, now so completely naturalized this fish in the Mauritius, that it is served at table with the other kinds of carp, which it greatly resembles in taste, though it has a more delicate flavour.

Though the gold fish is a native of a very hot part of China, and though it appears to enjoy the heat of a pine stove or orchideous house in England, yet it possesses the power of resisting a great degree of cold. Some years since Professor Host, a well-known naturalist in Vienna, chanced to leave a glass globe containing a gold fish in the window of a room without a fire, during one of the coldest nights of a very severe winter. In the morning he recollected his poor fish, and examining the glass, he found the water frozen apparently quite hard, and the fish fixed immovably in the centre. Supposing the fish to be dead, he left it in the ice; but, as it was extremely beautiful, he took a friend to look at it in the course of the day, when, to his great surprise, he found that the water had thawed naturally, from the room becoming warm by the sun, and that the fish was quite lively, and swimming about as though nothing had happened. The friend of M. Host was so much struck with this remarkable occurrence, that he tried a similar experiment; but bringing his frozen fish to the stove to hasten its revival, the fish died.

Gold fish live a very long time. A few years since there were some in a large marble basin belonging to the Alcazar of Seville, which were known to have been there more than sixty years, and which are probably still existing, as they then showed no signs of old age. They were indeed particularly active, though larger than usual, and of the most vivid colours. It was, however, remarkable that they were all of nearly the same size; and this is generally the case with all gold fish kept in clear water, as they never breed in such situations. It has also been remarked, that gold fish kept in glass seldom increase in size, particularly if the vase or globe in which they are kept be small. A curious experiment to ascertain the truth of this remark was tried some years ago in Paris. Two or three fishes a year old, which measured two inches long, were put into a glass globe exactly one foot in diameter. The water was changed every second day in summer, and every week in winter, as is usually done with gold fish kept in glass vessels, and they were occasionally fed with crumbs of bread; but in eleven years they had not increased one line in length. They were then taken out of the globe, and thrown into a pond in the garden, where there were no other gold fish; and when this pond was drained at the end of ten months, the gold fish were found to have increased in length, one about four inches, and the other nearly five. It has been before remarked, that gold fish never breed in clear water; and it has been observed that when they do breed, the young conceal themselves among the roots of plants, in inequalities of banks, or among the faggots which may have been put in for them. A lady who happened to pull up an aquatic plant which had grown on the bank of a pond in which there were some gold fish, was quite astonished to find the roots appear alive; and on examining them, she discovered the movement to be occasioned by a great number of little dark-brown fishes which were sticking to the roots. These little fishes were the fry of the gold carp, which are taught by instinct to conceal themselves from the old fish till the golden hue begins to appear on their sides, which it does when they are about an inch long. It is said that the gold carp devour the fry of other fish, and also their own, if they see them before the golden blotches appear.

When it is wished to breed gold fish in clear water in a tank or basin, a few faggots should be thrown into the water; or a sloping bank of gravel should be raised in the tank, the upper part of which is near the surface of the water. This will afford at once a situation for the old fish to deposit their spawn, and a shelter for the young fry. Some persons, when the spawn has been deposited on a faggot, remove the wood to another tank to rear the young; but they always do better, and grow faster, when bred in a pond with an earthy bottom, and in which plants grow naturally.

In keeping gold fish in ponds, no care is requisite but that of sprinkling a few crumbs of bread occasionally on the surface of the water to feed them; but when they are kept in any small vessel, the water should be changed regularly, not only for the sake of cleanliness, but because the fish will have exhausted the water of the animalculæ, which serve them as food. The usual rule is to change the water in glass globes or vases every second day in summer, and every week in winter; oftener if possible.

NOTES ON NEW AND SELECT PLANTS.

GUSTAVIA INSIGNIS. Nat. Ord. *Myrtaceæ.*—A fine warm-stove shrub, from Columbia or Guiana, attaining with us a height of from three to four feet. The blossoms measure from five to six inches in diameter, and are formed of six broadly obovate, creamy white, concave petals, externally tinged with rose; the stamens are very numerous, arising from a fleshy base or ring, the filaments being pink towards their upper extremities, giving the flower the appearance of having a fine pink and yellow coloured eye. The leaves are a span or upwards in length, of an obovate-lanceolate form, deep glossy, shining green, and nearly sessile. It is a plant of considerable beauty, both in foliage and flower, and deserves a place in every collection. It blossomed at Kew in June of the present year. (*Bot. Mag.*, 5069.)

79. GESNERIA DONKLARII. Nat. Ord. *Gesneriaceæ.*—Of this very handsome and now well-known Gesneriaceous plant, Sir Wm. Hooker has given a very striking and characteristic figure from the pencil of his talented artist, Mr. Fitch. Having already figured and described the plant, we shall merely observe that it is considered to be a native of Columbia. (*Bot. Mag.*, 5070.)

80. PHILODENDRON ERUBESCENS. Nat. Ord. *Aroideæ.*—Plants of the Arum tribe are not by any means so generally cultivated as they deserve to be when we consider their singular and varied forms, fine foliage, peculiar and often richly coloured inflorescence, together with, in some cases, a delightful scent. In tropical countries these plants constitute a striking feature, while they are as well among the most singular inhabitants of our stoves. For out-of-door culture also, there are some very pretty plants belonging to this natural order. What is more curious, and indeed we may say, so prettily striped, as the white and deep purple, almost approaching to black in the spathes of *Arum triphyllum, var. zebrina,* a perfectly hardy border plant, and yet how seldom is it seen in cultivation! The present plant, *Philodendron erubescens,* is one of the most conspicuously handsome of the tribe. The spathe is boat-shaped, six or seven inches long, of a deep blood-coloured purple on the outside, and bright crimson within; the spadix arises like a small column of ivory, and the foliage is of fine size and rich glossy green. It is closely allied to *Arum grandiflorum* (*Philodendron Hookeri,* of Schott), but differs totally in the colour of its spathe, which in the latter plant is white or cream coloured. The native country is unknown, though there is much probability of its being found in the Caraccas. It requires stove treatment. (*Bot. Mag.*, 5071.)

81. CŒLOGYNE SCHILLERIANA. Nat. Ord. *Orchideæ.*—A pretty little orchid introduced from Moulmein by Messrs. Veitch and Son, of the Exeter and Chelsea nurseries, through their collector, Mr. Thomas Lobb, and with whom it flowered in June, 1858. The pseudo-bulbs are small, bottle-shaped, and clustered; leaves two, lanceolate, from four to six inches long. Flowers large for the size of the plant, of a tawny-yellow colour, spotted or blotched with brownish-red or chocolate, and about two and a-half inches in diameter; the sepals are one-coloured and about an inch and a-half in length. (*Bot. Mag.*, 5072.)

82. ISOTOMA SENECIOIDES, *var.* SUBPINNATIFIDA. Nat. Ord. *Lobeliaceæ.* Syn. *I. axillaris.*—This is a very pretty greenhouse plant, a native of Bathurst and the surrounding district, in New South Wales, where it was first detected by the late Mr. Allan Cunningham (who considered it a *Lobelia*), and more recently by Mr. Frazer. If not strictly a *Lobelia* the generic distinction is so small that with the learned director of the Kew Gardens we are of opinion "that the genus does not appear to our eyes to be a natural one nor sufficiently distinct." The flowers are composed of five petals, of a light purple or deep lilac colour, with a long, somewhat

curved tube, pale yellow or green; the footstalks are some five or six inches in length, and the leaves, as indicated by the name, are generally pinnatifid and sometimes bi-pinnatifid. (*Bot. Mag.*, 5073).

83 ORCHIS FOLIOSA. Nat. Ord. *Orchidæ.*—According to the Rev. Mr. Lowe, this fine Orchis is found amongst grass and bushes of Broom, at an elevation of 3000 feet, along the rocky banks of the Ribiero Frio, in the island of Madeira. One native specimen gathered by that gentleman measured upwards of two and a-half feet in height. Plants have bloomed at Kew in a cool greenhouse during the present season. The stem and foliage greatly resemble that of *O. latifolia*, spotless; the spike of flowers is about three inches broad and from six to nine inches long, bearing numerous very pretty purple blossoms, ornamented with darker spots of the same colour. (*Bot. Mag.*, 5074.)

84. SWAINSONIA LESSERTIÆFOLIA. Nat. Ord. *Fabaceæ.*—It is rather singular that this attractive little plant had never been figured in any botanical work until Augnst last, when we find it illustrating a plate in M. Verschaffelt's "*L'Illustration Horticole*," and this more especially for it is one of the prettiest plants of its tribe. The blossoms, which are borne in profusion, are of very delicate shades of licac and purple; the leaves are pinnate, and, together with the blossom, combine to render the species one of the most ornamental of this genus of pea-formed flowers. The plant is neat and dwarf in habit, growing about nine inches in height, and is herbaceous. It does well in a cool greenhouse, requiring but little attention in cultivation; in winter it may be placed near to the grass in a cold frame; it is easily increased either by seeds or cuttings. From the south coast of Australia. (*L'Illust. Hort.*, 176.)

85. COSTUS VERSCHAFFELTIANUS. Nat. Ord. *Zingiberaceæ.*—M. F. Devos, one of the intelligent collectors sent out by Messrs. Verschaffelt, discovered this fine *Costus* in exploring the isle of St. Catherine, on the coast of Brazil, during the year 1848. Plants sent home by him bloomed in the nursery at Ghent, in 1850. It is a fine species, growing about a yard high and bearing a succession of its handsome, fringed, white and yellow blossoms, the latter colour being chiefly confined to the throat and lower petal; the leaves also are handsome, being both broad and long, of a deep, clear green. It flourishes in a low stove temperature and requires the same treatment as other plants of the ginger family. (*L'Illust. Hort.*, 177.)

SYAGRUS COCOIDES. Nat. Ord. *Palmaceæ.*—One of the very handsome palms, allied to Cocos, and inhabiting the forests which border the Maranon or Amazon. It is a small growing species but very elegant, not reaching higher than from eight to ten feet, and bearing a beautiful crown of fronds from three to five or six feet in length. For a house of small dimensions it will be found especially adapted. (*L'Illust. Hort.*)

BRASSAVOLA FRAGRANS. Nat. Ord. *Orchideæ.*—Although resembling in many points *B. Perrinii*, the present species is sufficiently distinct in others; the flowers are somewhat larger and the pseudo bulbs very elongated. It is also slightly varied in the colour, and, above all, possessed of a delightful fragrance. It is a native of St. Catherine's, whence it was forwarded by M. Devos to M. Verschaffelt, the distinguished horticulturist of Ghent. (*L'Illust. Hort.*, 180.)

NEW AND SELECT GARDEN HYBRIDS.

AZALEA INDICA, GIGANTIFLORA.—Raised by M. Delimon, in Belgium, and sent out for the first time last April. It is a most beautiful hybrid, remarkable for the great size and brilliancy of its flowers, which frequently measure near five inches across; their colour, bright rose richly spotted with crimson or violet on the three upper petals. The form is open to improvement, but for size it is certainly a considerable step in advance.

20. RHODODENDRON AZALEOIDES, *var.* CRISPIFLORUM.—We regret that we are unable to ascertain the names of the parents of this handsome hybrid; all that we know is that it was raised from seeds obtained by crossing one of the hybrid *Rhododendrons* with an *Azalea Indica*, by Mr. Delamotte, a successful cultivator at Ghent. The flowers measure about two inches across the mouth, and in some respects bear much resemblance to those of *Azalea crispiflora*, being irregularly crimped at the margin. The colour is a deep rose, all the petals being much spotted with crimson; the throat is pure white. The leaves are a good green colour, of medium size; and the whole plant, with the exception of the corolla, is slightly downy. The habit and character of the flowers would at once declare its origin from the *Rhododendron* and *Azalea Indica*, for it is absolutely intermediate in appearance between the two. It will be an excellent addition to collections.

21. HARDENBERGIA MAKOYANA.—A new hybrid, *Hardenbergia*, has been raised and sent out by Messrs. Makoy, of Liege, under the above name. It bears considerable resemblance to *H. Comptoniana*, but is sufficiently beautiful to become a favourite in the greenhouse. The blossoms are a lively purple or deep lilac, borne in close, short racemes, and in great abundance. We hope further attempts at improvement by hybridization will be made in this lovely tribe of Australian plants.

QUESTIONS, ANSWERS, AND REMARKS.

SHRUBS FOR A SMALL GARDEN.—Will the Editor or any correspondent favour *An Old Subscriber* with a list of a few choice shrubs for a small garden, situated in the north of Devonshire?—*Alpha*. [The following are all desirable shrubs for small

gardens:—Weigela rosea, Euonymus japonicus, Rhamus latifolius, Halesia tetraptera, Rhus cotinus, Philadelphus Gordonianus, P. floribundus, P. elegans, Arbutus ovata, Pernettya angustifolia, P. mucronata, Cotoneaster microphylla, C. rotundifolia, Calycanthus præcox, Hydrangea quercifolia, Viburnum japonica, Ilex latifolia, I. ciliata, Gaultheria Shallon, Leycesteria formosa, Cistus ladaniferus, C. roseus, C. purpureus, C. formosus, C. corbariensis, C. marginatus, C. candidissimus, Escallonia rubra, Illicium floridanum Duvaua latifolia, Benthamia fragifera, Arbutus Unedo, A. Andrachne, Deutzia corymbosa, Phillyera angustfolia, P. media, P. oleæfolia, Fabiana imbricata. The above are all very suitable for planting in conspicuous situations along the borders; the background may be filled with commoner sorts, as common and Portugal laurels. Some of the beautiful pink and crimson thorns should be intermixed amongst them. Lists of this kind might be greatly extended, but we have only noticed a few, which being both desirable and easily procured, may be safely selected by small proprietors who only require a few good and interesting things.—Ed.]

Rhodanthe Manglesii.—There are two seasons for sowing seed of this pretty annual: the first period being the middle of September, and the second the end of February. The soil should be rather strong, but not rich, as sandy loam and leaf-mould; they should be sown in pots and placed in a cold pit or frame (when sown in autumn) which should be kept close until the plants are up. The young plants should be potted off when small, for if allowed to attain much growth before this is done, they will not make nice plants. Place each plant in a small-sixty sized pot, and let them be returned to the frame and kept close until they begin to be established, when they may be hardened by admitting air. If there be danger of frost remove them to an airy part of the greenhouse for the winter, taking care they are not over-watered, as much depends on the manner in which they are treated during winter, and too much or insufficient water will destroy the plants very soon. In the spring repot them into a richer but light soil of sandy nature, and place them in a warmer situation and somewhat moist. Pinch off all the first flowers as they appear. The spring-sown plants may be treated like other half-hardy annuals, and must have plenty of air to prevent their being drawn up weakly.—*J. P., Wanstead.*

Sensitive Plant.—The movement of the leaves of the Mimosa pudica have their origin in certain enlargements, situated at the articulation of the leaflets with the petiole, and of the petiole with the stem. Those only which are situated in the last articulation are of sufficient size to be submitted to experiment. If, by a longitudinal section, the lower half of this swelling be removed, the petiole will remain depressed, having lost the power of elevating itself; if the superior half be removed, the petiole will remain constantly elevated, having lost the power of depressing itself. These facts prove that the motions of the petiole depend on the alternate turgescence of the upper and lower half of the enlargement, situated at the point of articulation: and that contractibility is not the principle of these motions. If one part of the plant be irritated, the others will soon sympathize, or bear witness, by the successive falling of their leaves, that they have successively felt the irritation. Thus, if a leaflet be burnt slightly by a lens, the interior movement which is produced will be propagated successively to the other leaflets of the leaf, and thence to the other leaves on the same stalk. A very clever French experimentalist, Mons. Dutrochet, found, 1st—That this interior movement is transmitted equally well, either ascending or descending. 2nd—That it is equally well transmitted, even though a ring of bark has been removed. 3rd—That it is transmissible, even though the bark and pith be removed so that nothing remain to communicate between the two parts of the skin except the woody fibres and vessels. 4th—That it is transmissible, even when the two parts communicate merely by a shred of bark. 5th—That it may be transmitted even when the communication exists by the pith only. 6th—But that it is not transmissible, when the communication exists merely by the cortical parenchyma. From these very interesting experiments, it results that the interior movement produced by irritation, is propagated by the ligneous fibres and the vessels. The propagation is more rapid in the petioles than in the body of the stem; in the former it moves through a distance of from three to six tenths of an inch in a second; in the latter, through from eight to twelve hundredths of an inch, during the same portion of time. External temperature does not appear to exert any influence on the rapidity of the movement, but very sensibly affects its extent. Absence from light, during a certain time, completely destroys the irritability of the plant. Such change takes place more rapidly when the temperature is elevated, than when it is low. The return of the sun's influence readily restores the plant to its irritable state. It appears, therefore, that it is by the action of light, that the vital properties of vegetables are supported, as it is by the action of oxygen that those of animals are preserved, consequently, etiolation is to the former what asphyxia is to the latter.

On Edging for a Walk.—For several years I have had the following-mentioned kinds of plants for edging to walks, and they combine neatness with beauty; they have been admired by all who have seen them:—Erica herbacea, and its varieties, grow about four inches high, and are easily kept compact; mine are six inches in breadth, and they commence blooming about the middle of January, in warm situations, and continue one mass of bloom for several months. Flowering too, at so dreary a season in winter, it is a very interesting object to have in view from the dwelling, or frequented walk. Erica cinerea, with its several varieties, also makes a very interesting and pretty edging. When out of bloom it has a neat and pleasing appearance: they bloom from July to the end of the summer. Menziesia polifolia alba, blooms dwarf, when four to six inches high, and its beautiful pearl-white flowers produce a very pretty effect; it begins to bloom in June, and continues to the end of the season. There are others of the Menziesias, as purple, rosy-red, etc.; also several others of the Ericas which are also suitable for the purpose but the three named kinds are what I possess, and have so adopted. I have sandy peat to grow them in. The Cotoneaster, trained to from four to six inches high, makes a charming edging.—X. Y.

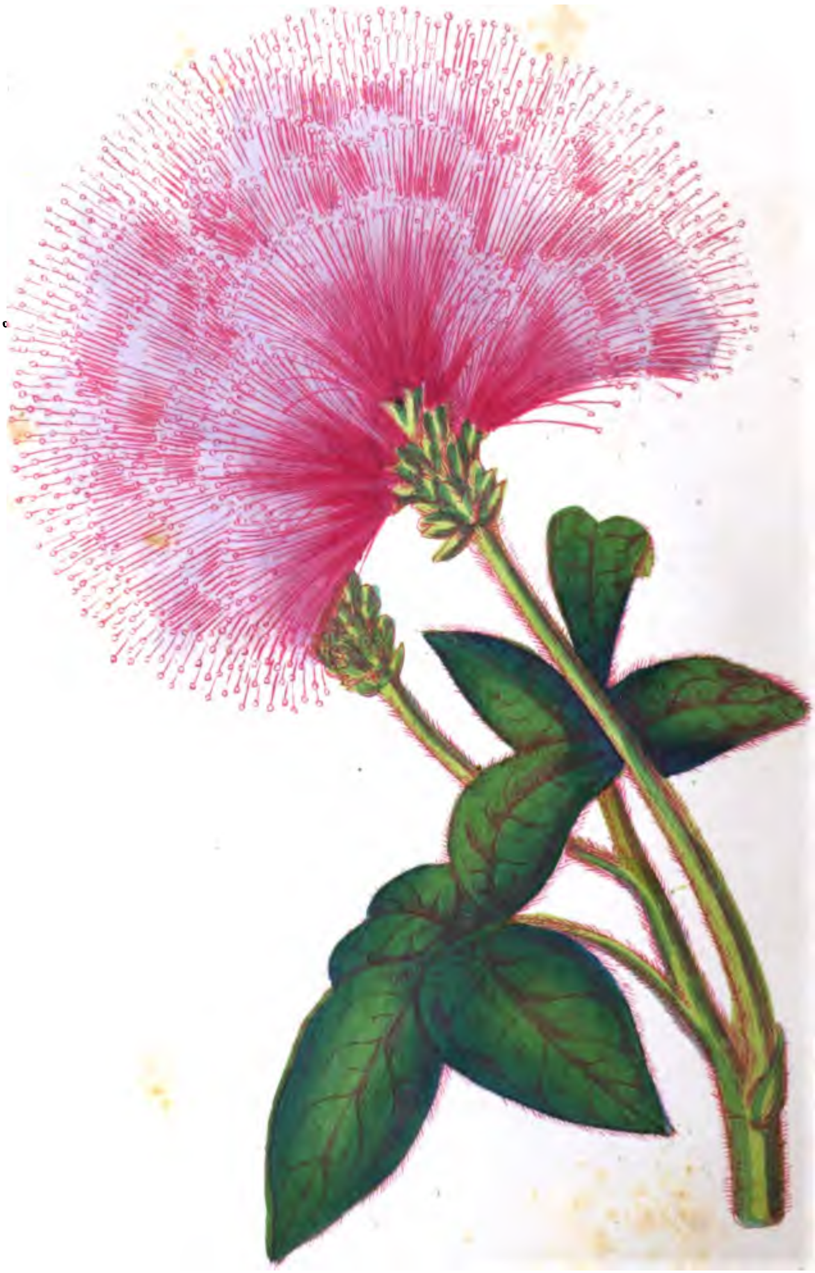
Winter Gardens.—Plants of comparatively kindred habits should always be chosen for grouping together. It is well-known how admirably the Scotch Fir falls into groups when it becomes old. And Cedars of Lebanon afford another example, from which it may be deduced that an affinity or resemblance between the plants in a group should be sought. Deodar Cedars also group beautifully. And the Black Spruce Fir, by its natural tendency to throw up stems around itself from the rooting of its drooping branches, creates, in many instances, a very picturesque group of its own. We have yet to discover what can be done in England by grouping Austrian Pines, Stone Pines, Hemlock Spruce, Araucarias, and rarer things of a lofty habit of growth; while many of the elegant Cypresses, Junipers, Thujas, etc., are capable of being presented to us in quite a novel aspect, if judiciously gathered together in picturesque groups. As Conifers are almost all evergreens, an assemblage of them, such as I have just described, would in itself compose a winter garden of a particular kind. And, in a similar situation, a quantity of ornamental shrubby evergreens might be gathered together so as to constitute a very effective specimen of the irregular winter-garden. Or, if Rhododendrons and their allies were exclusively used, the same scene might be transformed into an American garden. But the more usual and acknowledged application of the term "winter-garden" would be to a plot that is arranged in a purely regular manner, with the beds cut into quaint or at least formal figures, and the shrubs for these beds selected for the colours of their foliage, and placed each by itself in a separate bed. With a due regard, in the choice of plants, to diversities of height and habit, to the periods of producing flowers or berries, to the variegation or other conspicuous peculiarity of the leaves, to dwarf edgings of another kind of plant, and to the right employment of standard or specimens, a formal winter-garden, whether kept apart by itself, or made to fall in with the general sweep of the lawn, may become deeply attractive both in summer and winter. There will be the most obvious propriety in restricting all the elements of the winter-garden to evergreens. Plants of *dark* foliage, such as the common Yew, Irish Yew, *Taxus adpressa* (which makes a beautiful low standard), and common Savin, will be of great use in the composition, as will those with light-coloured or variegated leaves; those which flower or fruit in either summer or winter; those fitted for edgings, and such as bear clipping into regular shapes. Among light-foliaged plants the tamarisk-leaved Savin, the common Lavender, and the *Helianthemum canescens*, may be mentioned, while *Kalmia latifolia* and *Daphne pontica* supply leaves of a pale green. Plants that flower some time in the summer, and fruit in the winter may be represented by Cotoneasters, Ivy, Gaultherias, Pernettays, Pyracanthas, etc.; and those which flower in winter or very early spring are *Erica carnea*, *Rhododendron Dauricum atrovirens*, *Andromeda floribunda*, *Garrya elliptica*, *Berberis aquifolium*, *Laurustinuses*, etc. A few that are most showy when in flower, at other periods, are Rhododendrons, Double Furze, Heaths, Helianthemums, Menziesias, Ledums, and *Azalea amœna*. The best variegated kinds include Aucubas, variegated Ivies and Periwinkles, Golden Thyme, variegated Savin, *Euonymus Japonicus variegatus*, a variegated variety of *Rhododendron hirsutum*, dwarf variegated Hollies, and silver and golden Yews. Of plants possessing much character as specimens for a winter-garden, a few may be indicated. They are Yuccas, Standard Rhododendrons, Cotoneasters, *Taxus adpressa*, black-leaved Laurustinus, and sweet Bays, Irish Yews, Irish Furze, Irish Juniper, *Abies Clanbrasiliana*, *Thuja aurea*, Tree Ivy, Golden-blotched Holly, *Juniperus recurva*, and the Golden-striped Yew. The following may be used for edgings: *Berberis empetrifolia*, *B. Darwinii*, *Epigæa repens*, *Gaultheria procumbens*, blue, white, and variegated Minor Periwinkles, variegated Savin, Golden Thyme, and others. Several things which might become too large for an ordinary winter-garden, can sometimes be kept in order and due limits by growing them in pots, or slate tubs, plunged in the ground, and occasionally lifted to prevent the roots from spreading into the surrounding earth. The beds of a winter-garden will always look best if cut on grass, and it would be nearly impossible to edge them with Box, if they were divided by gravel walks, for the shrubs would soon damage or destroy the Box. Where gravel is the separating medium, therefore, they must be edged with stone, tiles, or slate.—*Mr. Kemp.*

SUPERSTITIONS CONCERNING THE BLOSSOMING OF PLANTS.—The Crocus was dedicated to St. Valentine, as it appears about the period of that saint's day. One species of Daisy appears about the time of St. Margaret's day, this is called in French *La Belle Marguerite*. The Crown Imperial blossoms with us about the 18th of March, the day of St. Edward, King of the West Saxons, Nature thus, as was imagined, honouring the day with a floral "imperial crown." The Cardamine, or Lady's-smock, so distinguished for its milk-white flowers, is dedicated to "Our Lady" the Virgin Mary, appearing about Lady-day. The St. John's Wort blossoms near that Saint's day, and the Scarlet Lychnis which was called the Candle plant, was supposed to be lighted up for that saint's honour also, who was "a burning and a shining light." The White Lily expands about the feast of the Annunciation of the Virgin, affording another coincidence of the blossoming of well-known white flowers at the festivals consecrated to the mother of our Lord. The Roses of summer were said to fade about St. Mary Magdalen's day. The Passion flower was believed to blossom about Holy-Rood day, and allusions to this are frequently to be discovered in the writers of a former day. According to the tradition current in the Catholic church, the cross on which our Saviour was crucified was discovered in the year 326 by the Empress Helena, who built a church on the spot, and the day of discovery was celebrated afterwards as Holy-Rood day, *Rood* signifying cross in obsolete English, hence the plant was connected with the "passion" or sufferings of Christ, and more especially also from the fact of the resemblance borne in its flower to the cross, the nails, crown of thorns, etc., discovered by the early missionaries of Catholic faith.—*T. K. S.*

KEW.—In the herbaceous ground by far the most remarkable feature at present is Tritoma (Kniphofia) Uvaria, many plants of which are now in full bloom, and some with no fewer than from 60 to 70 flower-stems all in the greatest gaiety and beauty. There will be but few we imagine who may visit Kew while they are in flower that will not be delighted with these magnificent perennials, and desirous, if possible, of adding them to their gardens.

CENTAUREA MOSCHATA.—I have remarked here, on repeated trials, that the florets of the disk in Centaurea moschata, or common Sweet Sultan, are completely sensitive, continuing to move spontaneously long after the finger has been removed. Can you inform me if this be a distinguishing character of the species in general, or merely the effect of a tropical climate?—*David, Seringapatam.*

CHRYSANTHEMUM EXHIBITION.—Our friends at Colchester have decided on holding their Annual Exhibition of Chrysanthemums on Thursday, November 11th. We anticipate a strong gathering.



The Floricultural Cabinet.

NOVEMBER, 1858.

ILLUSTRATION.

INGA FERRUGINEA.

THE noble plant of which we present a figure on the opposite page, is by far the most showy of the genus, and is deserving of a place in every collection where space can be allotted to it, in a rather moist heat. Its beautiful, tufty, large silky heads of blossom, so greatly exceeding in size those of any other known species, and the red down which covers all the plant, render it a most ornamental climber, whilst it is also remarkable for the size of its foliage. Where grown, it suits best for a pillar, or for training along a trellis in front of the house, and should be allowed plenty of room. It is a plant of easy culture in peat and good loam, and readily increased by cuttings struck in soil or sand, under glass, in gentle heat. *Inga ferruginea* is a native of Brazil, inhabiting the district known as the Serra da Caraça, where it climbs trunks of trees to a height of about thirty feet, and may be seen loaded with its handsome flowers.

* * *

ON THE ANALYSATION OF SOILS AND MANURES.

BY G. I. T.

THE most comprehensive directions for effecting the important processes of analysis, are to be found in the last edition of Liebig's works, or in Sir Humphry Davy's Lectures upon Agricultural Chemistry. Drs. Thompson and Henry have written on the subject; but for common purposes, I consider a very simple process to be more suitable. No writer that I have met with, has entered into a refined, philosophical inquiry, on every point of the analysis; and, without great space, it would be impossible to go into minute detail. I prefer, therefore, to simplify the routine, but to elucidate, as far as may be, the chemical principles which refer to each individual process. The varieties of soils are almost innumerable, but the constituents are very few. Divest a soil of vegetable and animal decomposable matters, and the pure earthy parts consist of sand or gravel (*siliceous substances*), pure clay (*alumina*), chalk (*carbonate of lime*), and iron, in the form of an oxide. These are the staple earths, and they all have metallic bases. Occasionally, small portions of magnesia, gypsum (*sulphate of lime*), oxide of manganese, and some saline products—as common salt, muriate of lime, and perhaps sulphate of potash—are traceable by delicate analysis; but good loams, the very best, productive lands, do not require the presence of these compounds. The four primary earths named, are blended in varying proportions; hence, it is almost impossible for any one to ascertain that he can possess himself of a soil which has been recommended for the growth of different plants. The gardener is told, and reads of rich loams, hazel loams, sandy loams, light mellow earth, etc. etc.; but all these terms are indefinite; and no one can follow the directions thus candidly given, without being subject to disappointment, for the loams and earths, which a person may believe to correspond with those he reads of, are susceptible of changes as numerous as those that may be rung upon a peal of as many bells. Chemical analysis is the only source of correct information; and it is fortunate that a man who is of an inquiring turn of mind, and desirous to investigate causes, can, at a very trifling expense either of money or time, arrive at a certainty of conclusion—which must be extremely satisfactory.

Let any one take up a spit of, what he judges to be, a good sound loam; and then let him select a saucer full from the middle part of the spit—say, four inches below the surface: this should be done in fine weather, when the ground is in rather a dry state. The soil so collected should be broken, or rubbed by the hands, till it be made as fine as possible; and, in this state, it is to be exposed, in an open shed or room, to the influence of a current of air, where it may lose all the moisture that it can be deprived of, without the aid of fire or direct sunshine. Things being in this state, it will be proper to allude to the instruments which will be required for a sufficiently minute analysis; and I cannot do the subject greater justice, than to transcribe a paragraph which I find in Dr. Henry's Epitome of Experimental Chemistry (8vo, page 412). I do this with the greater satisfaction, because the writer was an extremely clever chemist, and had extracted the directions he gives from an early work of the late Sir H. Davy. Hence, the reader will be in possession of two eminent chemical authorities, and this must tend to inspire confidence.

The instruments are:—"A balance capable of containing a quarter of a pound of common soil, and of turning, when loaded with a grain; a series of weights, from a quarter of a pound Troy to a grain; a wire sieve, sufficiently coarse to admit a pepper-corn through its apertures; an argand lamp and stand; some glass bottles; Hessian crucibles; porcelain or Queen's ware evaporating basons; a Wedgewood pestle and mortar; some filters made of half a sheet of blotting-paper, folded so as to contain a pint of liquid, and greased at the edges; a bone knife, and an apparatus for collecting and measuring aëriform fluids. The chemical substances, or re-agents required for separating the constituent parts of the soil, are muriatic acid (spirit of salt), sulphuric acid, pure volatile alkali dissolved in water, solution of prussiate of potash, soap-lye, solution of carbonate of ammonia, of muriate of ammonia, solution of neutral carbonate of potash, and nitrate of ammonia.—The re-agents are sold, together with the instruments mentioned above, by Mr. Knight, Foster-lane, Cheapside, arranged in an appropriate chest."

Most of the above articles may now be obtained, at a quarter of their former prices, of respectable chemists and druggists; but still, Mr. Knight, of Foster-lane, or Messrs. Wood, of Cheapside, keep every re-agent, and appropriate apparatus, and may be, at any time, referred to.

I shall arrange the processes under their respective heads, thus:—

1. *Drying.*—When this has been effected by the air, till the mass be reducible to powder, let an ounce weight be gently triturated in a mortar till the bulk will pass through the sieve; by this means the larger stones, bits of wood, or of vegetable matters, will be separated. If the first be found sufficiently hard to scratch glass, they may be considered siliceous or flint stones; if they effervesce when acid is poured on them, they are calcareous, or of the nature of chalk; but if they be soft, easily broken up, and do not evince any hissing, or disturbance in strong acids, they are of an aluminous or clayey nature. These stones and fibres ought to be weighed, in order to find what is their comparative proportion with any known weight of soil. Four hundred grains of the siftings, by accurate weight, are to be put in a saucer, with a small piece of shaving; and this vessel is then to be exposed to the heat of a gentle charcoal fire or lamp (the contents being often stirred with a wire), till the chip becomes slightly charred; at which period the drying must cease, otherwise the vegetable portions of the soil may be burnt; and in that case the chemical properties of the soil will be materially affected. It is calculated that the heat which will thus render a bit of shaving somewhat brown, is about 300 deg. of Fahrenheit. The soil thus dried, ought to be accurately weighed again, and its loss in weight will show the quantity of water in absorption which it can retain. In fact, if soil so dried by actual

fire heat, be long exposed to the air, it will absorb a corresponding degree of moisture again, though it remain dry to appearance. Davy, Mr. Johnson, and other writers, consider the absorbent power of soils to be indicative of their composition if not of their comparative fertility. 50 parts out of 400 may be lost out of some soils—others lose but 20 or even 10 parts; and in these, sand is very predominant. I doubt the criterion much: having an example before me of a very fine loam, which I find to be almost altogether *fine silex*, and which loses 5¼ per cent. by a heat of about 300 deg. Coarse sand indeed is very little retentive, but siliceous earth is, comparatively, very highly so.

2. *Process of Washing.*—Suppose that 20 parts of water have been separated from 400, by the heat of 300 deg.—380 parts or grains remain: let these be boiled in four ounces of rain water, and then suffer the particles of soil to subside. When cold, decant the clear liquid; then add a little more water to the deposited matters,—stir them together, and pour the whole into a paper filter, which has been previously dried and weighed. Wash in all the dregs, and catch the drainings. If the liquid decanted off be not quite bright, let it pass through the matters in the filter: *finally*, wash those, by adding a little more pure water. These waters of lixiviation contain all the salts, and other substances soluble in water; and they should be retained in a vessel for future experiment. The filter and its contents are to be dried,—first by absorption on a lump of chalk; then, by gradual exposure to a strong heat: to that at least, which the side of a parlour stove furnishes. The paper and its contents are then to be weighed; and the quantities of soil remaining, will be ascertained by subtracting the weight of the paper. Should the soil retain any degree of moisture, it must be dried in a saucer, or upon a broad plate of tin, and be then rebalanced.

3. *Process by Muriatic Acid.*—It will facilitate the description to place before the reader an imaginary analysis, which, however, will contain a close approximation to a real process. We will, therefore, presume that by drying and lixiviation the original quantity of 400 grains has been reduced to 360 grains. These might be treated in bulk with the acid; but I propose to the analyst to divide the soil into two equal parcels, each of 180 grains; because, as the object is to detect the carbonate of lime, it may, with advantage, be effected by a comparative experiment, which will prove very instructive.

(To be continued.)

Mr. Broome's Chrysanthemums.—Every one who has it in his power should avail himself of an opportunity to inspect the gardens of the Inner and Middle Temple, which will, we believe, be more than usually attractive this year.

GLEANINGS AMONGST THE HARDY PERENNIALS.

BY CLIO.

(*Continued from page* 184.)

CARDAMINE TRIFOLIA is of humble growth, its flowering stems are about six inches high and produce numerous small white four-petalled blossoms, waved on their edges. Curtis deems it interesting, from being mentioned by Parkinson, who writes that it was sent to him by his "especial good friend, John Tradescant, who brought it among many other dainty plants from beyond the sea, and imparted thereof a root to me." Its trefoil leaves and creeping roots are found growing wild in Lapland, Switzerland, and Austria. Highly deserving of the attention of floriculturists is the curious *Antirrhinum triornithophorum*, or "Three Bird-bearing Snapdragon;" its purple, green, and yellow flowers, always growing in threes, are about two inches long, and terminate in a sharp point. I raised it from seeds procured at Carter's, and it has come up vigorously and spontaneously in a distant part of the garden, surviving the winter, and extending its shoots and roots into the edging of Heath. It is described be Professor Herman, as bearing the Dutch winters, and growing to the height of a man, in the Botanic Garden at Leyden, more than a century since. It is a native of Portugal. *Erica ciliaris* grows several feet high, its delicate leaves are edged with hairs, its small, purple, bottle-shaped flowers expand from July to September; its localities, in a wild state, are Spain and Portugal.

To North America we are indebted for the lovely *Spiræa trifoliata*. It is rare, being difficult to propagate; its roots may be parted, and if seeds are sown in a shady border they must be carefully attended to. The blossoms are white with a pink tinge, and resemble in shape (only with elongated petals) those of the Jessamine. How beautiful, but how difficult to grow, is the *Gentiana verna;* its five-petalled azure-blue flowers are numerous on the plant, which has small, clustered leaves; it requires a soil of mixed peat and loam, and has been found on the mountains between Gort and Galway, also on those of Austria, Switzerland, and the Pyrenees; I have been told that it grows abundantly in meadows near Barnard Castle, Durham, and is helped by being occasionally trodden upon. The Isle of Candia produces the curious *Centaurea ragusina;* it is also found near the Mediterranean, in Europe, and Africa. I have felt doubtful whether it should be classed amongst the hardy plants; but Miller writes, that if planted in dry lime rubbish, it will bear our ordinary winters in the open air; perhaps those who possess the plant in their greenhouses may have tried the experiment and will inform us of the result. Its height seldom exceeds three feet, the stalks are perennial, and divide into many branches, exhibiting in June and July bright yellow flowers, the bracts of the calyx being tipped with brown; the stalks and leaves are white. The young shoots which do not flower will take root if inserted during the summer in a shady border. *Agapanthus umbellatus* has survived in my garden many winters, with very slight covering over its roots; it is increased by offsets; the stem rises to the elevation of two or three feet, terminating in a magnificent head of greyish-blue flowers; I have also the white and the variegated-leaved varieties. It has long been cultivated in the garden at Hampton Court, and was imported from the Cape. The Valais, Italy, Spain, and the south of France are the native localities of *Achillea tomentosa;* its white woolly leaves, fringed with green, mat together on the ground; the stalks seldom rise higher than nine inches, expanding during most of the summer clusters of flowers of a fine yellow colour.

The silvery foliage of *Geranium argenteum*, with its large delicate pink blossoms, opening in June and July, render it an object of interest; it was found on the summit of Mount Baldus, celebrated for its variety of botanical specimens, and also in the south of Europe. From Russia and Germany we have received *Sempervivum globiferum;* its flowers are large, with many narrow petals, pink in the centre, and pale green at the edges; it grows best in a dry, light soil. In June we are greeted with the deep blue blossoms, with yellow centre, of *Sophora Australis;* they resemble the Lupine in shape; it likes a light soil and open situation, and grows spontaneously in Carolina, dying down in the winter; its shoots attain the height of about two feet, and it well deserves a place in the border of a shrubbery. Holland, Germany, Switzerland, Carniola, and the north of Europe, produce *Convallaria bifolia;* it seldom rises higher than four or five inches; the stem, however, is rarely found with more than one leaf, which is rather large compared with the minute white blossoms which appear in May. *Campanula pumila* decorates the gardens early in spring with its profusion of blue flowers (the white variety is also very pleasing); it is found wild in Switzerland.

ON WATERING PLANTS.

BY EXONIENSIS.

ALL practical gardeners are, doubtless, aware that when cuttings of soft-wooded or succulent plants are put in, before the wounds have had time to heal over, and the soil is, perhaps, immediately moistened, it is generally attended with fatal consequences to the cutting. Now the woody parts of plants, being more consolidated and less porous than their roots, are altogether less calculated to imbibe an undue portion of moisture, yet we find that even these do so to a most injurious extent, and therefore we may reasonably conclude that roots mutilated and placed in the same circumstances would have a greater chance, from their peculiar organization, to suffer from such a cause; nor can there remain a doubt that they do so. This points out as most injudicious the practice of turning plants out of their pots, reducing their balls, as the case may be, thereby lacerating every fibre, and placing every rootlet in a worse position than a cutting, and then finishing the operation by giving a good drenching of water, which, as we have already seen, must make dire havoc among the previously reduced channels by which the plant receives its food. Such is, in a great measure, the cause of delicate plants suffering so much from shifting, of the check they receive unless the operation be carefully performed, and consequent loss of time in recovering from its effects. Still this is an every-day practice, that has descended to us hallowed by the custom of ages, and sanctioned by the highest authorities. Who ever heard of directions for shifting or potting plants that did not end thus?—"Give the whole a good watering, to settle the mould in the pots, and the operation is completed."

Upon shifting or transplanting plants in dry, hot weather, when an arid atmosphere causes, by excessive evaporation, an unusual drain upon the roots, the necessity of a supply of water will soon become apparent; and administering it under such circumstances is less injurious than under any other, from the activity maintained in every part of the plant rendering stagnation an unlikely occurrence. But even then, when practicable, it is better to confine them in a close, moist atmosphere, which, with water overhead, and shade, will enable them to exist through the medium of the leaves until growing has commenced, and the roots are in a condition to receive, without injury, the necessary supply.

It is, however, when there is a deficiency of heat, vegetation languid, and a corresponding danger from excess of moisture, that such precaution is most required, and the contrary practice most hurtful. Among seedlings of tender sorts the mortality from such maltreatment is truly great; and, when the impossibility of transplanting such without in some shape hurting their few and almost unformed spongioles, scarcely more consolidated than the fluid in which they are so thoughtlessly immersed, is considered, their certain destruction is not to be wondered at. The advantages these derive from the treatment described led me first to examine more closely what I deem a matter of much importance.

Before quitting the subject for the present, I may here add that the injury inflicted by such treatment is not confined to the plants alone, the soil also is frequently injured. It has been placed between the sides of the pot and the root-bound ball containing the plant, where, being in a comparatively loose state, it receives the whole of the water that is considered sufficient to moisten the whole mass; as, where there is so little resistance, it is as effectually repelled by the dry ball as by the sides of the pot. This reduces what has been added to the condition of a puddle, and in this state it stands a good chance of being baked as hard as a brick: at all events, it has been totally unfitted to afford that nourishment to the plant it otherwise would have done. Such consequences may be avoided by applying moisture gradually: but if some time is allowed to elapse there is not so much to fear, even from the usual soaking, as the old and new materials must in the interim have become equally dry; a state, let it be remembered, indispensable to the thorough incorporation of such materials.

ON THE MANAGEMENT OF CAPE HEATHS DURING SUMMER.

BY MR. W. THOMPSON.

BEING a great admirer, and also a cultivator, of these beautiful plants, I may perhaps render a service to others by giving a few hints respecting their proper management when put out of doors in summer; my practice is as follows:—After first taking out all the plants that I intend from the heath-house (say, at the beginning of June), and removing them into pots according to their size, I have a bed of cinder ashes made to the depth of 12 in. or 15 in., and I then plunge the pots into it up to their brims, arranging them according to the height of the plants. Instead of giving large quantities of water in excessively dry weather (as is sometimes done), I give a moderate supply only; at the same time taking care to have the cinder ashes well soaked with water, which keeps the pots in a moist state during the heat of the day. I find this to be much better than the common mode of placing the pots out, and leaving them destitute of any protection from the penetrating rays of a hot sun, which must be most injurious to this very beautiful tribe of plants. When the pots are exposed, in the manner above-mentioned, to the heat of the sun, they become quite hot: this consequently exhausts and dries up the soil; and no Heath whatever, in this state, can recover, the fibres of the roots being so small, that they lose all their vital action; and the more you water, the sooner you hasten their decay. This error many gardeners fall into with respect to Heaths, which are often set out, like other hardy green-house plants, without sheltering them from the scorching rays of the sun; besides which they are frequently crowded too closely together, which greatly injures them, and brings on that rusty and unsightly appearance so often to be met with in our gardens. I would venture to suggest that the Heaths should never be allowed to touch each other, but that they should all stand separate, in whatever form they may be placed; as, when this is the case, they cannot possibly injure each other. The principal rule to be observed in rearing Heaths in houses is, to allow at all times free circulation of air; likewise to

keep the pots in a moist state; taking care not to have them soaked too much with water, nor scorched with drought. I should also say from my own experience that no Heath ought to be put out of the house when there is room to keep it in, so that the plants may stand clear of each other, as, by being exposed in the open air, they are liable to get drenched by the heavy rains so frequent in the summer months, and which can only be avoided by awnings of canvas being erected (this, too, at a considerable expense) to protect them from the rain, as well as from the scorching rays of the sun.

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NOTES ON NEW AND RARE FERNS.

BY MR. W. S. PRESTOE, VICTORIA PARK.

(Continued from page 251.)

Dictyonia (J. Smith), *Polypodium sp.* (R. Brown), *Dictyopteris* (Presl.), *Drynaria* (Fee).

Generic Description.

SORI oval, naked, immersed in the substance of the frond; veins uniformly reticulated, the sporangiferous receptacles uniting several reticulated veinlets; areoles elongated, more or less oblique, with no free veinlets; fronds simple, coriaceous, glaucous, from six to twelve inches long, articulated near the rhizome; rhizome creeping, rather fleshy. This genus is readily known from its allies by the nearly uniform venation, and the areoles being destitute of free veinlets.

D. attenuata (J. Smith), *Polypodium attenuatum* (R. Brown), *Dictyopteris attenuata* (Presl.), *Drynaria Browniana* (Fee). Fronds simple, linear, attenuate at the base, coriaceous, of a dark green colour, from six to twelve inches long, the margin of the upper portion often crenate; sori large, of a russet brown colour. A native of Australia, and a rather slow-growing greenhouse fern; a little extra heat when the young fronds commence growing in spring will greatly assist it. Soil, rough peat and leaf-mould, with plenty of silver sand and broken crocks, so as to have a free drainage; care must be taken never to allow this fern to suffer from want of water, or it may cost the possessor his plant. This is a very interesting species for Wardian cases, its upright, coriaceous fronds rendering it very conspicuous amongst the more delicate sorts. I am not certain of its being in the trade, but there is a fine specimen in the establishment at Kew.

HYMENOLEPIS (Kaulf.), *Gymnopteris* (Presl.), *Acrostichum* (Linn.), *Lomaria* (Willd.)

Generic Description.

Sori naked, the sporangiferous receptacles confluent, forming continous linear sori; veins anastomosing, irregular, internal, with a simple free veinlet in each areole; fronds simple, lineo-lanceolate, smooth, coriaceous, attenuate at the base, the upper portion of the fertile frond abruptly contracted, forming a linear fertile spike; fronds articulate near the rhizome; rhizome creeping, furnished with a few large scales. The present genus is easily distinguished by the apex of the fertile frond being abruptly contracted, and its under surface amorphous, or covered with sporangia.

H. spicata (Presl.), *Acrostichus spicatum* (Linn.), *Lomaria spicata* (Willd.), *Gymnopteris spicata* (Presl.). *H. revoluta* (Blume). Fronds linear-lanceolate, coriaceous, attenuate at the base, glaucous, from nine to fifteen inches long, of an olive-green colour, arising from the rhizome at very short intervals. A native of the Malay Archipelago. It requires a moist, warm atmosphere, ranging from 60° to 65°. Soil, rough peat, leaf-mould, silver sand, with good drainage. It is a very beautiful and interesting fern, on account of its remarkable contracted fertile fronds; both to the cultivator and botanist it is very rare; a nice specimen may be seen at Kew, and a few nurserymen have it.

NEVRODIUM (Fee), *Tænitis* (Sw.), *Drymoglossum* (J. Smith), *Pteris* (Linn.)

Generic Description.

Sori naked, confluent, forming continuous linear sori; veins irregularly anastomosing, with a free veinlet in each areole; fronds simple, linear-lanceolate, the under portion of the upper half sporangiferous, articulated near the rhizome; rhizome creeping, furnished with a few large brown scales lying close to the rhizome. This genus is known from *Hymenolepis* by the fertile fronds not being contracted, and by their continous linear sori. It is an instance among others that too great reliance should never be placed on a slight variation in the form of sori for generic distinction; a specimen now before me presents three distinct forms of sorus, one side of the frond having its characteristic confluent sori, and on the other side both round and linear ones—showing how difficult is the task of finding a true and reliable generic distinction.

N. lanceolatum (Fee), *Pteris lanceolata* (Linn.), *Tænitis lanceolata* (Kaulf.) Fronds lanceolate, slightly undulated, opaque, attenuate at the base, the upper portion of the fertile fronds slightly contracted, from six to as much as eighteen inches long, of a bright green colour, arising from the rhizome at very short intervals, and rather pendulous. A native of the West Indies. This plant requires the same treatment as *Hymenolepis*, and is not quite so interesting as that genus, being also very rare and existing only in the noble collection at Kew.

CAMPYLONEURON (Presl.), *Cyrtophlebium* (R. Brown), *Marginaria* (Presl.), *Polypodium sp.* (Auct.)

Generic Description.

Sori naked, globose; veins pinnate from the costal, prominent; venules opposite, transversely anastomosing in a series of angulate arches, which on their exterior side produce one-two-three free veinlets, the sporangia being either medial or upon their apex; fronds simple or pinnate, coriaceous or membranaceous, from a few inches to five feet in length, articulated near the rhizome; rhizome creeping, long and wiry, or short and fleshy, furnished with a few scales. This genus is readily told from any of its allies by the arch-like venules, and the production of various numbers of free veinlets which produce the sporangia, either medial or terminal.

C. angustifolium (Fee), *Cyrtophlebium angustifolium* (J. Smith), *Polypodium augustifolium* (Swartz.), *P. dimorphum* (Link.), *P. amphostemon* (Kunze), *Marginaria augustifolia* (Presl.) A native of tropical America.

C. ensifolium (J. Smith), *Polypodium ensifolium* (Willd.), *Marginaria ensifolium* (Presl.), *Cyrtophlebium ensifolium* (Hort. Kew). From tropical America.

C. decurrens (Presl.), *Polypodium decurrens* (Radd.), *P. polyanthos* (Hort. Brus.), *Cyrtophlebium decurrens* (Hort. Kew). A native of Brazil.

C. rigidum (J. Smith). Fronds simple, contiguous, linear-lanceolate, attenuate at the base, coriaceous, smooth, upright, from six to fifteen inches long, about three quarters of an inch wide, the margin much thicker than the space between it and the costal; sori round, small, thinly scattered on the under surface; rhizome creeping, short; the fronds arising immediately after each other. A native of tropical America; cultural directions same as for Phlebodium.

(To be continued.)

ON SEEDS.

BY F. E., COUNTY DURHAM.

AMONGST all the reflections on the machinery of nature, in her miniature works, there is nothing that presents more curious observations to the mind of the lover and cultivator of flowers and plants, than the wonderful diversity that exists in the forms and peculiarities of seeds; as they appear to offer an amusing study, though not so generally attractive as the "gay denizens" from which they spring, the following remarks on their peculiarities may not be wholly superfluous. Some are so carefully enveloped in their verdant cases, that it is a difficult matter to hit on the moment for gathering; this applies particularly to all the pea and podded tribes, which are very long in ripening, and when ripe, explode, curl up their shields, and discharge their contents. Others, as the *Potentillas*, have no protection at all, except in the loose calyx of the withered flower, and are outside the small vessel, which in other plants usually contains the seed. The *Sphenogyne* is most remarkable and peculiar; the seeds form in circles from the flower-stalk a thick tuft, and at the top of each seed is a perfect, small, everlasting white flower; the seed ripens so soon, and scatters as it ripens, that it is not easy to find a perfect head, otherwise it would greatly resemble the form and blossom of Thrift.

The seeds of the *Silene procumbens* are enveloped in a double case; the one, the flower calyx, which becomes transparent as it dries, and, within it, the other, a compact little pear-shaped vessel, containing the seed.

The winged seeds, as Thistles, Groundsel, etc., are quite familiar to every one; these, no doubt, are intended by Providence to be carried and dispersed far and wide over the earth; though why, as they are generally those of useless, if not noxious, plants, cannot, to our finite views, be explained.

The Scotch Thistle deserves special attention in the catalogue of seeds; its fine thick down and nutty firm kernels are beautiful specimens of the finished perfection of the vegetable kind, in the humblest rank. The Tiger Lily has *two* ways whereby it propagates itself—one by seed in the usual receptacle succeeding the flower; the other, a sort of berry or bulb, formed on the stalk, at the axil of the leaf, which, if dried and planted, will become flowering plants at the end of two or three years.

The seed of Honesty, however well known, deserves attention; it is different to any other, consisting of a middle shining layer, proceeding from the stalk, on each side of which are seeds; it has two outer layers, protecting the seeds and middle layer, *un*attached to the stalk; when perfectly ripe they and the seeds fall off, leaving the middle layer clean and bright for winter nosegays; mixed with everlasting flowers it has a good effect, and shines as if varnished. Crocus seeds form in the earth, and come up ripe, and the pod opens long after the flowers go off. The Meadow Sweet, and all its kindred tribe, form their seeds so exactly like the flower-buds, as to render it difficult to distinguish one from the other, except as the season denotes them.

The Wild Iris (*fœtida*) seeds are very ornamental; when ripe, the seed-pod bursts into three parts, keeping the triangular shape of the flower preceding it, and retaining the seeds for a long time attached to it, which are of a beautiful bright coral or orange colour, and make the banks of the hedges in Devonshire, where it abounds, quite brilliant. The seeds of the Wild Arum, and some others, are also very pretty, though, being more dwarf, they are soon lost in the falling leaves. The seeds of the *Conia turbinata* are wholly external, with scarcely any attachment; they are most difficult to save. The large Garden Poppy is most curiously divided within its seed-vessel in quarters or compartments, containing thousands of seeds, and at the top of this apparently close case, finished with a neat rosette, are air-holes, like little windows, to admit air to dry the seed, and prevent its moulding, which in wet seasons it is very apt to do; these plants ripen their seeds in a surprisingly short time, compared with others, though so closely packed. I have often observed in the lower portion of the seed-vessel slits, as with a knife, by which seeds escape; on the other hand, when they are ejected through the holes in the top, a considerable quantity of seed is left below. It is worthy of remark, that self-sown Poppies are always finer than those sown by hand, which I attribute to all seeds being in general sown too thick. When we see a vigorous, branching, self-sown flower of any kind, we are apt to forget it is the offspring of so minute a seed. Most plants of the same tribe produce their seeds alike; this is not the case with the Convolvulus. The major and minor (annuals) have their seed vessels in four parts, remarkably compact, and seed freely; the perennial kinds have one loose seed-vessel, containing at most a few ill-shaped seeds, and oftener found destitute of any. It is worthy of remark here, although well known to many, that if the dead flowers of any plant are removed before the seed is perfected, the same will continue flowering for a length of time; if left to seed and ripen, they soon perish. This applies particularly to all the Campanulas, Sweet Peas, Sphanogynes, Lupins, Antirrhinums, etc. China and Perpetual Roses, when the first flowers go off, if cut down to the first, second, or third bud from the flower, the second bloom will be materially assisted.

In offering these remarks, founded as they are on my own limited experience, I do not pretend to have supplied, or to have been able even to select, the subjects most worthy of observation; yet if I succeed in drawing the attention of any one better qualified to treat the subject, or present to the young another branch of inquiry and innocent pursuit, this contribution will not have been made in vain.

Of the beauty and varied, almost countless, interesting forms presented by seeds when under the microscope, I have said nothing, although here an unlimited field of gratification and research lies in the power of every one who is the possessor of so exquisite an instrument.

HOW TO MAKE A TABLE BOUQUET.

A GREAT deal of taste, to say nothing of skill, can be employed in building up the table bouquet, and as seen at the most *élite* gatherings, this is an object of great beauty. Fancy a table spread ofttimes with the most costly gold and silver "sets," with viands that would do honour to M. Soyer, of *cuisine* celebrity, brilliantly illuminated with one or more chandeliers coming down generally to within three or four feet of the table. Immediately under these, central on the tables, or equidistant if more than one is used, as the case may be, is the place occupied by this work of nature and art—"the table bouquet;" its size varies with the table it is to be placed on, the occasion used for, and the means of the proprietor for obtaining abundance of flowers; for as this, like *evening parties*, comes most frequently in winter, the flowers and making of such an one we now have reference to costs considerable money. We have seen and helped to build many, and know several ways it is sometimes done, but know of none by which a large one of two or three feet high can be so richly made as the following:—

Any bouquets of this size must have a "frame" to build on. To do this, take the glass stand or vase out of the *epergne* or centre piece, as the case may be, and fill with pure white sand, or place white paper in first; water this sand sufficiently to make it lay close, then select good dry branches of Hemlock, Spruce, or Juniper, if obtainable, and stick into this sand, forming altogether quite a thicket; when sufficient is put in, take some common white string and tie this a sufficient number of times, to form a perfect cone of the desired height and width; any place in tying, not sufficiently full, must have a little green added until it is so.

This is what is called "the frame." The common Fir Club Moss (*Lycopodium dendroideum*)—a beautiful thing for the purpose—is then put all over this frame, its object to form a perfect back ground for the flowers, and in places where the flowers do not meet to show pretty green points.

Now then for the flowers. In June, or when they can be had, the conspicuous ones will be Roses; after that, and until frost comes, Dahlias; between first frost and December, Chrysanthemums; and throughout winter, the Camellia, which of all flowers for the purpose none can beat; take from three to six dozen of these, mostly red and white, if for candlelight, and dot equally over this frame, then "fill in" with small flowers, and it is a gay object indeed.

A right good point or top piece is also important, as is a good finish to the bottom; to illustrate with easily obtained material: select the largest leaves of the rose Geranium, tie each to a stick, then set these true around the base of the frame, leaves hanging downwards; lay around these, inserted the same way, the gracefully drooping Fuchsia. For bouquets of this description, most flowers are better if tied to small willow sticks. After the joint conspicuous flowers and base are all arranged, the filling-in is done with any flowers, mostly small ones at command. The bouquet then built is carried steadily and deposited in its position on the table. It may be urged by some, "all this is too much trouble for me." Friend, if you are a gardener, think it not too much trouble; nothing superior is ever obtained without it, and if such things need be, surely they are as appropriate and useful as any other ornaments to the dinner table.—E. SANDERS, *in Emery's Journal.*

HALF SHRUBBY CALCEOLARIAS.

THE half shrubby Calceolarias, although the more difficult to propagate, are by far the handsomest portion of this lovely genus, whether we view them as regards their elegance of habit, their richness of colouring, or the profusion and magnificence of their blossoms.

In the first place, as regards propagation, no cuttings should be take off in the spring, after the main shoots have started for flowering; for these, when plunged in a gentle heat, will invariably run up to flower, and not one in ten will produce any roots. It is this which may, in some cases, render them difficult to propagate; but if proper cuttings are put in, at the right season, I assert that few plants strike root so readily. For this purpose, the young shoots should be selected in the autumn, after they have done flowering. These should be taken off close to the stem, and planted round the edge of a pot previously filled with a mixture of half turfy peat, and half white sand, putting two or three inches of broken pots at the bottom, for drainage. After giving them a good watering, they should be plunged into a moderate hot-bed, where they will soon take root, which may easily be ascertained by examination. Cuttings may be put in during the whole winter, and, if attended to as above, scarcely one will fail.

Next, as regards their subsequent treatment; they should be potted off, as soon as sufficiently rooted, into small sixty-sized pots, using a compost of about three-fourths turfy peat, and one-fourth sandy loam, being very careful to use a sufficient quantity of potsherds, to carry off all superfluous moisture. They may be kept in a frame for a day or two, till they have struck fresh root, after which they should be placed in an airy part of the greenhouse, where they may remain till about the middle of January, when they will require to be shifted into one-size larger pots, which shifting must be repeated as often as they fill the pots with roots, till they commence flowering. A compost of equal parts of turfy peat and sandy loam will be found to suit, as they advance in growth; a little hot-bed manure, well decomposed, may be added, and gradually increased, so that at the last shift it may be in nearly equal proportion with the peat and loam, which, I ought to have stated, should not be sifted; but chopped and beaten fine with the spade. It is also necessary to use an increasing proportion of drainage at each successive shift. From first to last they require particular attention with regard to watering, in the performance of which there are two great evils to be avoided. I refer, on the one hand, to the possibility of starving them to death by withholding a sufficient supply, through a careful anxiety to prevent falling, on the other hand, into the no less dangerous extreme of supplying them too liberally. This last will be certain to perish the fibrous roots, and render the soil in the pots too much saturated for any ordinary plant to thrive. The first may be attributed to a too careful and officious fondness, but the other must be the result of careless indifference; and, though they spring from such opposite sources, yet both are most injurious. In fact, this may be applied to the greater part of plants in cultivation; but I know of none in which it is more perceptible than in the Calceolaria. The happy medium, however, between these two extremes, is just what these plants require. They should be watered only just enough to keep the whole of the soil in the pots moderately moist; recollecting, however, that as the plants advance in growth, and the sun becomes more powerful, a more copious supply may from time to time be given; and if the draining, as recommended above, be attended to, no injury need be anticipated on this point. As regards blooming, they should receive their final shift, just as they commence flowering, as previously intimated. The size of the pots used, if anything like perfection is aimed at, should certainly be not less than one foot in diameter, and the same in depth; but it must be borne in mind that such a body of soil, without sufficient drainage, instead of imparting the desired health and strength to the plants, would be the cause either of a lingering death, or a puny and disgraceful growth. After being thus potted, they should be returned to the greenhouse, where they receive abundance of light and air, keeping them at a respectful distance from each other, and liberally supplying them with water. It will be necessary to intercept the direct rays of the sun, by rolling mats or canvas on the roof of the house: this will preserve them much longer in flower, and, at the same time, add a dazzling richness and brilliancy to their colour.

When their beauty has somewhat declined, they may be put out of doors, in a situation where they will be protected both from the mid-day sun and also from heavy rains. They will throw out a supply of cuttings towards autumn, which must be taken off, and treated as above. When a sufficient quantity is obtained, the old plants may be preserved in pits or frames during winter, and planted out in spring.

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ON THE ÆSCHYNANTHUS.

BY W. G. R.

THE Æschynanthus has rapidly advanced in general estimation, and one or another of this species are found in every good collection, a natural consequence of the union of really splendid flowers with a graceful, ever-verdant, and unique style of growth. To say they well deserve our best attention is but uttering a truism, for when well managed they are among the most gorgeous of stove-plants, and some or other of the species may be had to blossom through the greater part of the year. There is a singularity in the character of these plants, uniting, as it does, the pendant habit of the class to which they belong, with the most copious production of foliage not usually observed in epiphytal vegetation, that, properly displayed, can never fail to arrest attention, and when seen with a due proportion of flowers, they are indeed fit objects of admiration to all.

Their general culture requires but little trouble, that is, they may be grown to exhibit the utmost luxuriance wherever a suitable temperature can be afforded, though some amount of practical skill is, as may be expected, required to induce the degree of beauty they are capable of attaining. The pendulous habit which prevails in the genus will naturally point out the propriety of cultivating them in baskets which may be suspended, or in some other position, where their natural character may be developed.

It is well known to all who have attended to the culture of the Æschynanthus, that the roots never penetrate far below the surface of the material in which they are grown, and therefore the baskets to contain them need not exceed three or four inches in depth, the more usual size of six to eight inches deep being unnecessary, and indeed objectionable, from the probability of the extra quantity of soil becoming soured; it must, however, be understood that I do not recommend the roots to be restricted in their lateral extension; on the contrary, their development in this direction should be encouraged, and with this view it is advisable to have the baskets wide as well as shallow, and the lighter their construction, the more it will add to the beauty of the plants.

To illustrate my treatment, I will suppose the specimens planted in such baskets, in a mixture of moss cut very fine, with a third of leaf-mould or rotten wood added, this forms a porous and suitable medium for their fleshy roots. The period of their most active growth we may consider to extend from January to May, and during that time they should be kept in a warm and moist atmosphere, the temperature of which may range from 75° to 85°. Syringing will be necessary at least twice a day, to promote a healthy growth, and to keep down the red spider, to whose ravages the thick coriaceous foliage is very subject; and when water is given to the roots, which will probably be required twice or thrice a-week, let it be a liberal application, for the system of giving a little and often is most deceptive, merely tending to sodden the surface, while the lower portion is left comparatively dry. As soon as the flower-buds are perceptible less moisture will suffice, until they become quite clear of the stems, when the liberal treatment may be resumed, and every encouragement given and continued till they assume their colour. A situation somewhat cooler, though not lower than 60°, will impart the greatest brilliancy to the flowers, and preserve their beauty for a considerable time, but it will not be safe to continue the plants in a lower temperature than that named, lest the blossoms receive a check, which in all probability will prevent their expanding.

The Æschynanthus being quickly acted on by a change of temperature, I find that by removing the plants back to the warmer atmosphere as soon as the blossoms decay, and adopting the course before described, to cause a resumption of growth, that five successive crops of flowers may be had; and it is remarkable that without these changes, but few flowers are ever produced.

I may here mention a circumstance connected with the production of flowers, which opens a means of inducing the most obstinate to bloom well. A specimen of *Æ. grandiflorus* had attained a fine state of health, and, so far as growth was concerned, could not be desired in better condition, but for several seasons it refused to flower, and, from some cause unknown to me, the plant kept continually growing; change of temperature in this case had no effect, and in time it became too large for the trellis to which it was attached. Caring very little for such a plant, I cut the leading shoots back close to the frame, and in a short time it was covered with its extremely rich flowers, amply repaying for all past disappointment; this mode of pruning I have tested several times since, and always with similar success. Its effect has been the same, not only with the species named, but also on *Æ. Boschianus*, *Lobbianum*, *pulchra*, and *radicans;* with some of the latter plants I pinched off the point of each shoot on only half of the specimen, leaving the other portion untouched, and in a month the pruned part was furnished with flowers, while, on the other side, they were greatly deficient.

During winter the treatment of these plants should be marked by a comparative dormancy, an amount of rest proportionate with the development of the active season, being as necessary with these as with every other vegetable form, and to ensure it they must be kept both cool and dry. Their propagation is easy; well-ripened cuttings of the preceding year's growth are to be preferred, as being less liable to failure from damp, which often attends the employment of young tender shoots. Planted in the usual way, they emit roots profusely, and should subsequently be kept in small pots filled with light sandy peat and leaf mould, till of sufficient strength to meet the final shift.

ON PRUNING THE VARIOUS CLASSES OF ROSES.

BY A CORRESPONDENT.

AS the season is now approaching when the pruning of Roses should be attended to, a few observations may not be out of place to the amateur readers of the *Cabinet*, as from frequent observations among this class of correspondents, it appears this subject is not properly understood, the consequence of which is, that much of the beauty of these deservedly popular flowers is lost, and instead of the plants growing compact and producing large and handsome blossoms, but few blooms are produced, and in many cases none at all; many a variety I have known discarded from the flower-garden, solely because its management was not properly understood.

The Roses comprise a class of plants which we find divided into many tribes, differing more or less from each other, by the form of the flowers or the habit of growth, and even in one and the same class, we oftentimes find two varieties vary considerably in their habit of growth; it is therefore obvious that a corresponding difference of pruning should be adopted; nothing can be more absurd than to take the knife and go through a collection of roses, pruning them all in the same manner. As a general rule, the pruning of Standard and Dwarf Roses may be considered under the old terms of long, short, and moderate pruning.

By long pruning is meant, the leaving of from four to five, or even six, eyes on each of the strongest shoots, removing entirely all weak and worn out wood, as well as all shoots not required; this method should be adopted where the variety is of a strong growing nature, as where these kinds are cut shorter, rampant growth alone is induced instead of bloom. Among the families of *Gallica, Hybrid China, Hybrid Bourbon, Hybrid Perpetual, Provence, Alba, Damask,* and *Moss*, many varieties will be found to which these remarks apply.

By short pruning is understood the leaving of two eyes only on each shoot, and this should be adopted in order to obtain fine blooms from weak growing kinds, as is the case with many varieties to be found in the families of *China* and *Teas;* the practice of leaving these varieties long cannot be too strongly condemned, as in a few seasons the wood produced will be so weak, as scarcely to produce a bloom, whereas if the strongest shoots are regularly and systematically cut back, and the weak ones removed, all the energies of the plant are directed to the remaining buds, the result of which is, that tender and weak roses are made as it were naturally strong, shoots are produced strong enough to produce fine flowers, and the shoots being stronger they become better able to endure the severity of winter.

By moderate pruning is meant the cutting back to three or four buds upon a shoot, and is the system generally adopted in pruning most kinds, and succeeds well among those sorts which are of moderate growth.

In pruning Roses for pillars a different method should be adopted from the preceding, the great object to be borne in mind is to secure a regular and abundant bloom, from the bottom to the top of the pillar; to effect this, strong shoots must be secured from the bottom, these should be wound spirally around the pillar placed for their support, at equal distances apart, so that the pillar may be hidden with their branches and foliage; these leading strong shoots constitute the pillar rose, and the branches produced up the sides of these produce the bloom, these should be annually cut back, nearly close to the main stems, to within two or three eyes, in order to produce fresh lateral branches to produce new bloom, and according as the main branches become old and worn out, they should be cut down to the bottom, in order to produce new wool to supply their place. These remarks will be found to apply also to climbing roses on trellises or walls, the same treatment being successful with these also.

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NOTES ON NEW AND SELECT PLANTS.

INGA MACROPHYLLA. Nat. Ord. *Leguminosæ.*—A fine stove shrub of recent introduction, received from South America, and first sent out by our friend Mr. Linden. It reaches, with us, from ten to twelve feet in height, and is remarkable, as an Inga, for the size of its foliage, which consists of two or three opposite pairs of leaflets, which are sessile, varying in length from four to eight or ten inches, of ovate or obovate form; the petiole is broadly winged, so as to be also obovate. The blossoms consist of beautiful globular heads of yellow flowers, resembling silky balls, two inches across, being chiefly composed of the numerous long filaments of the stamens. (*Bot. Mag.*, 5075.)

89. Ouvirandra Bernieriana. Nat. Ord. *Juncagineæ.*—We have the gratification of announcing the receipt of another species of the "Lattice-leaf plant," under the above name. It differs from *O. fenestralis* chiefly in the leaves being longer (from one and a-half to two feet), and narrower in proportion, almost ligulate, the reticulation smaller, and the colour a brighter green. It was discovered by the Rev. Henry Ellis, inhabiting the lakes of the little-known island of Madagascar, from whence the same gentleman procured the other species. (*Bot. Mag.*, 5076.)

90. Æsculus Californica. Nat. Ord. *Hippocastaneæ.* Syn. *Calothyrsus Californica.*—This is the Horse-Chestnut of California. It is a low, spreading tree, not exceeding, we understand, at any time twenty feet in height. Messrs. Veitch are in possession of young trees that flowered with them in July last, which are considered hardy in England. It is very ornamental, and if, as we are

led to expect, its hardiness be established, it will prove a fine addition to the shrubbery. The leaves are much smaller and neater than those of our well-known tree, and the blossoms more numerous; they have also the additional recommendation of continuing to appear for a long time. The flowers are in dense spikes, greenish-white, the unexpanded buds being tinged with rose. The wood is soft, white, and brittle, resembling in this respect all the other known species. It grows abundantly in the valley of the Sacramento, and about Monterey. (*Bot. Mag.*, 5077.)

91. Œnothera bistorta, *var.* Veitchiana. Nat. Ord. *Onagraricæ.*—A dwarf, handsome, and abundant blooming *Œnothera*, possessing many qualities suiting it for bedding; the blossoms measure about an inch across, and are borne in close spikes, of a rich golden yellow, with a small dark orange-red spot at the base of each petal. It is an annual, and ripens seed well with us. It grows wild in the southern districts of California, and was introduced by the eminent firm whose name it bears, through their collector. Mr. William Lobb, who detected it at San Gabriel in that state, (*Bot. Mag.*, 5078.)

QUESTIONS, ANSWERS, AND REMARKS.

Bouvardia longiflora, and Araucaria imbricata.—Will you or any of your numerous correspondents have the goodness to inform me the best mode of propagating the *Bouvardia longiflora?* I have tried cuttings, but not one has rooted. I shall also feel much obliged for information regarding the cutting off the lower branches of my *Araucaria imbricata*, which are rather shabby and too near the grass; should they be cut off close to the stem at once (and at what season), or by degrees?—*G. P.* [If you find a difficulty in getting the cuttings to root freely, you may increase stock by dividing the roots, and also make cuttings of the roots. Those plants that have been planted out may be now repotted, and will be found better suited for bedding out next season than cuttings, as they flower earlier and more freely. Cut them down, however, before starting them into growth. Old plants, if made to renew their growth in a little heat in March, will bloom in May and continue in flower throughout the season. The *Araucaria* will not bear much cutting; you should do it, however, without delay.—Ed.]

New Verbenas.—Will you, or any of your correspondents, be kind enough to answer *An Old Subscriber* by stating, in your next number, the names of two dozen of the best new Verbenas?—*C. B.* [We can highly recommend the following new varieties:—Isabella, Kitty Tyrrell, Domvilliana, Beauty of Castille, Norfolk Rival, Loch Katrine, Mrs. Ebrington, Bishop's Purple, Miss Hanmer, Defiance, Topsy, Sunshine, Cynthia, Ladybird, Lilian Mary, Beauty of Denton, Miss Breeze, Cardinalis, Cherub, Prince of Prussia, Sarah, Evening Star, Miss Trotter, and Julia de Courcele.—Ed.]

Sections of Roses and their Treatment.—The Editor of the *Floricultural Cabinet*, or any subscriber, will render a lasting service to myself and other Rose cultivators if he would insert a few short hints on pruning this favourite flower, both how and when it should be done on the different sections of Roses.—*A Rose Cultivator.* [Our subscriber may consult with advantage the number for November, 1856, and September, 1857. As regards pruning and the time to do it, see the *Calendar of Operations* for the year 1857.—Ed.]

Chrysanthemum Shows.—As the Chrysanthemum shows are drawing near, I want to ask you, for insertion in the approaching month's number of the

Floricultual Cabinet, whether the operations performed upon this flower, in order to make it fit for "presentation," are legitimate and honest? I contend, but am sneered at for my opinion, that they are not. I cannot forget the first time of seeing the tweezers, steel, and ivory, used for extracting the "eyes" and drawing up and out the petals, so as to produce out of a most rough, hollow flower, one most even and conical in shape, a perfect change from a ragged street beggar to a drawing-room guest. I had the *entree* of the green-room, where I saw assembled all the exhibitors, each armed with his forceps, reminding me exactly of Professor Brown's hair-cutting saloon, where you see the operators with their scissors and curling-tongs, turning out a stiff-haired young gent, into a pretty curly-headed youth. Joking aside, I do not think the practice right; the flowers should be shown as grown, and the act of trimming and dressing is not justified because adopted by all: In point of fact it is not the flower, but the *trimmer* of the flower who is entitled to the prize. Another important feature against the practice, is that it is a deception upon the public; they see at shows flowers so splendid, such ducks, such beauties, give orders at enormous prices, and when they grow them in their own gardens are surprised and annoyed to find them as dissimilar to the show flowers as possible. In showing last year, to compete with others, I was compelled to adopt the trimming and eye-extracting, against my inclination though, and under protest, stating my intention of adopting my present course. I am told that one flower will sometimes occupy a dresser *four hours!*—oh, *ye flower shows!* Be kind enough to express your opinion upon this subject and oblige.—*William Worth.* [We *are* of opinion that the practice of trimming is allowable; but the best cultivators will have but little necessity for the tweezers.—Ed.]

Thrip on Azaleas.—Your correspondent, *An old Subscriber, Wigan*, in the last number of the *Floricultural Cabinet* inquires the most effectual remedy for this pest Having been much troubled with it I have made several minute observations with the microscope. I applied all the popular remedies, including tobacco, tobacco-water, sulphur, lime, soot, ammoniacal liquor, and a host of other ingredients that were recommended to me. When examined under the microscope none of these applications seemed to affect the insect. I eventually applied the common Scotch snuff, the effect of which was instantaneous, the insect appearing quite paralyzed. Having made this observation on a single subject, by the aid of the microscope, I determined to apply it wholesale, which I did in the following manner:—Take a quarter of a pound of common Scotch snuff and put it in an ordinary flour-dredger; turn the plant quite over, taking care that the soil does not fall from the pot, and apply the dredger freely, so that the snuff will fall on the underside of the leaves, place the plant in a stove with a moist atmosphere, let it remain twenty-four hours, and then syringe thoroughly with lukewarm water. Should the plant be badly infested repeat the dose two days afterwards. It must be borne in mind that the young Thrips are more difficult to exterminate than the old ones. Whilst dressing the plant a newspaper may be so placed as to catch the superfluous snuff, which may be replaced in the dredger. I have tried dipping the plants in tobacco-water, as recommended by you, but without success. My experience shows that tobacco-smoke is perfectly harmless to them, and I have no hesitation in stating that if my plan be properly applied this pest will soon disappear. I have never known it fail in one instance.—*R. D. N.*

Dahlia Shows: The Felton Exhibition.—There can be no doubt that great good would be effected if the committee-men would settle the method as to how flowers should be shown, whether in stands or bottles; for part of the flowers at this exhibition were in stands, others of the same kinds in bottles; in order to have them uniform the officers settled, after many of the flowers were placed for judgment, which should be shown in stands (in tin tubes) or bottles. On this occasion Mr. Edwards, of York, arrived at half-past eight; his flowers were on his own stands, ready placed, only needing to be drawn out of the ledge they were on and placed on the table, the back petals were all supported by perns (reels for thread); the flowers were easily shifted and arranged. As all Dahlias were to be shown in bottles, his stands were of no use to him; bottles were brought for him and he commenced building; the first pern removed from the Dahlia-stalk to place it level in the bottle brought the back petals down like a shower; there was scarcely a flower which was not injured, more or less, insomuch that Mr. Edwards would have been unquestionably first, could he have shown his blooms in stands (he, however, was second). At half-past ten the tents were to be cleared for the judges—Mr. Glenny was to be premier judge, and a telegraphic message from several stations north of Alnwick announced that that gentleman had mistaken Bolton for Alnwick station, and was at Chat Hill; the telegraph was answered, to a Mr. Bolam, Chat Hill, to forward Mr. Glenny with all possible speed; Mr. Bolam complied and a spirited steed, full gallop, brought our judge in an hour and a-half, to the show-grounds. The day then had changed its dull aspect, and the Alnwick folks had a first-rate fine day. I wish especially to name a few flowers, with my own observations thereon. In Mr. Oliver's stand (silver cup), I saw Mrs. Legge, very large and fine, with Lollipop, large, fine, and better than any I have seen of that popular flower. In Mr. Edwards' stand (2nd £2) I saw Elizabeth, a lilac, well up in the eye, good outline, back petals, firm, thick in the petal, but not thickly filled with them. I take it for the same Elizabeth which came out ten years since; also Sir F. Bathurst in outline and eye good and large; an Amazon very large, no stranger knew it; it had lost the carmine hue on the tip, and had a bad rosy tint; the flower pretty fair in other respects; also two Empresses, extremely large and coarse, and Mary, coarse also. Mr. Crossling (of Felton, gardener) had all his flowers level in size, very good although small; perhaps he does not prune sufficiently, pruning should be done in a formal manner, three stems are enough, and the eyes of other shoots should be rubbed off, in order to remedy the evil of small blooms. In Mr. Balfour's, Mrs. Trotter deserves recommendation; it certainly is the levelest marked Dahlia that I know, well worth a place in every collection. I even prefer it to Amazon, which flower is an esteemed one here; it is much recommended by Mr. Glenny, who says, "Never omit Amazon in any stand of eighteen." In Mr. Richardson's (2nd amateurs' cup), Amazon was splendid, and very round in the petals; Midnight a useful colour, but in hot weather it blooms very badly, the heat causing the hard eye to split before it has time to expand, the eye dresses very easily; Touchstone, a splendid lilac, has the same fault, since that time I have seen very beautiful flowers of them. Mr. Newton, of Newcastle, an excellent judge, told me the same had been the course with his flowers, and Royal Scarlet has the same fault, and more so, for when better and milder weather comes it is generally of no use; Princess, a dull dark lilac, was pretty good, its only fault being thin petals; Colonel Windham was very good, and is a flower well worth growing, being constant (as I write, a splendid Colonel Windham is before me; of form, habit, petal, eye, and outline and back petal, I never have seen its equal); Bessie, a yellow, very green in the eye, *a great fault;* Lady Popham, a white, rather small. There are a few others marked down on which I shall afterwards speak; as I wish to give you an account of the Asters and Hollyhocks in the north I conclude with the Dahlias for the present, and I shall give you an account of what we think good, in another communication. In Hollyhocks, a Mr. Fenwick, shoemaker, Nether Wilton, never has been beaten; he was first at Bishop's Auckland (the largest show in the north), Durham, Hexham and Alnwick on the same day, and at many smaller shows; he exhibited a good seedling at Alnwick. This gentleman has an advantaged ground for his flowers, he grows them in squares, with a tent over them, and a light cover over the stem, of one yard of muslin ten inches broad, tied at both ends round the stem; where the bloom has to be protected two or three strong wires, twelve inches long, are fastened to this bag, crooked at each end so as to clasp and keep the cover from shifting or blowing against the flowers; by these means he secures constant, chaste, well-coloured and well-petalled flowers; his land grows them full and large, in addition to which these means are used to make good better. In Asters, perhaps, a better season or a better bloom never was seen, they exceed everything ever exhibited, both at Felton and Alnwick; at Alnwick, Mr. Harrison, Darlington, showed twelve Roses in Moss, in a green box, according to the National Order. I never saw flowers set up with more taste in my life. Mr. Harrison got the first prize. Hoping Alnwick and Felton good weather and honest competition next year, I conclude with a wish of good success to the *Cabinet;* it was my first floral companion and self-instructor, and when

I receive it myself, I have others wishful for its perusal, and to instruct with it. Again wishing it well I bid you farewell until my next.—*J.*, *A Correspondent.*

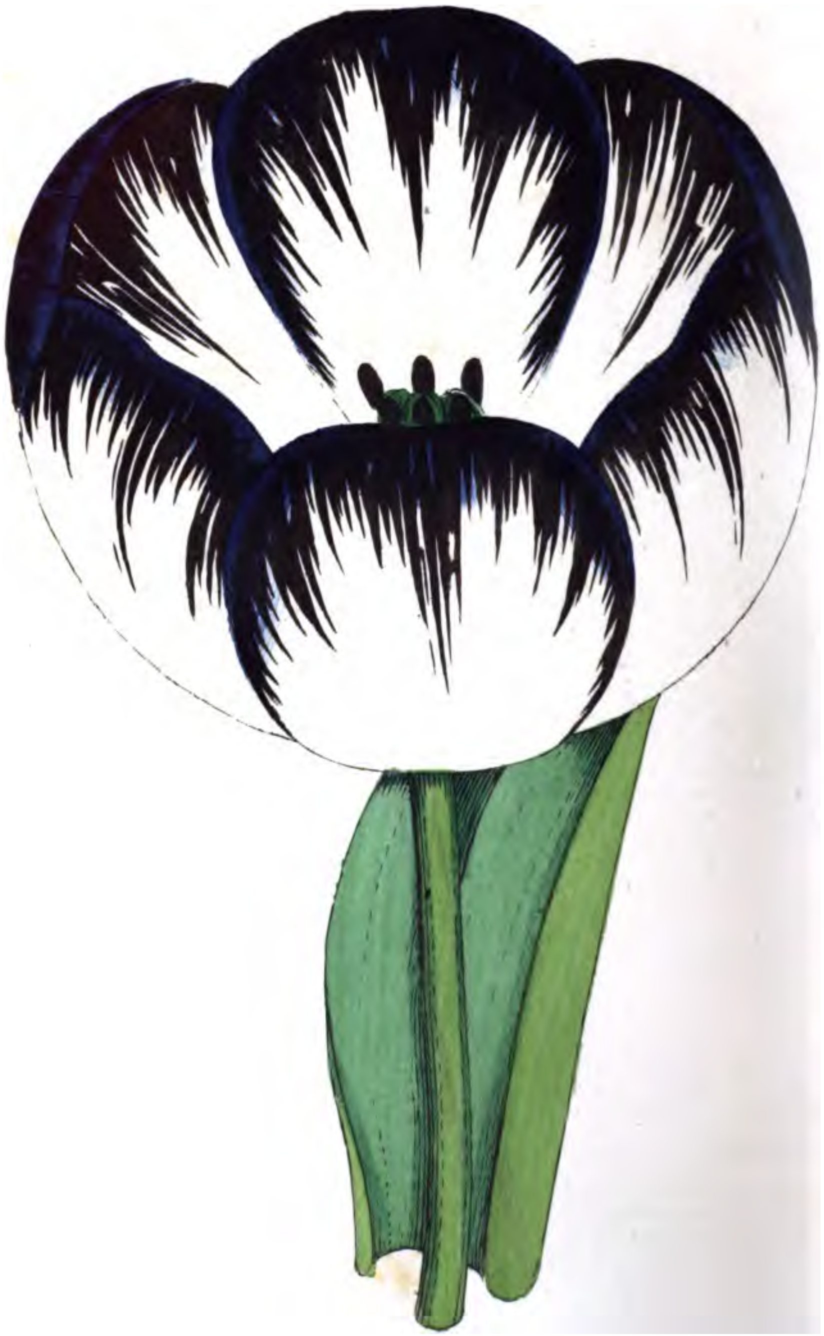
Seasonable Hints.—As November is a month when, from the near approach of winter, every lingering flower is doubly valuable, such of your readers as may chance to have half-hardy flowering plants against walls, may be glad to know how to protect them during frosty nights, so as to prolong their flowering season as long as possible. There are many ways of doing this; but perhaps the cheapest and best plan for a small garden, is to tie a number of wisps of straw together and to hang these on holdfasts driven into the wall to receive them. No person should attempt to grow half-hardy plants on a conservative wall, without its being provided with these holdfasts; as the covering will be only required during the night, and should be removed during the day. In November, cold frosty nights are often succeeded by bright sunshine in the days, and it is in such weather that this mode of covering is particularly useful. November is the season for taking up the Dahlias. As soon as the flowers and stems are killed down to the ground, they should be cut off and thrown away, leaving the tubers in the ground a week or ten days to dry. They should then be taken up, and a parchment label, with the name of the Dahlia written on it, should be attached to each by wire; after which they should be laid on boards in a cellar, or any dry place, and covered with sand or sawdust. They should be kept at a temperature between 35° and 45°, so as to exclude the frost, but not to heat them too much. Let every gardener provide himself with a good thermometer like Casella's.

Polyanthus Narcissus.—It is not sufficiently observed that the agreeable perfume of plants, in full bloom, when diffused through an apartment becomes deleterious only when the air of the room is confined. The strong but delightful scent of this favourite plant is sometimes an objection to its being grown in the dwelling-room. The Polyanthus Narcissus may be planted in the open border at any time from September to February, in a light soil, either separately or in groups; where they will flower in great beauty. When the leaves are decayed, the bulbs should be taken up and replanted in September, in preference to allowing them to remain and flower again in the same situation. In water-glasses they bloom in equal perfection to the Hyacinth. The principal points requiring attention in this mode of cultivation are these:—Prefer soft water; let it touch the bottom of the bulb only, and by daily attention keep it at that height. Change it altogether once a-week or ten days, and at each change a small piece of saltpetre, as large as a pea, may be added with advantage. When the flowers fade the bulbs will be strengthened by being planted in the borders, carefully extending the roots in the soil. Obtain fresh bulbs for glasses each season.—*B. M.*

Luculia gratissima.—The first plant of this species which grew in Britain, was raised at Ashridge, the seat of the Countess of Bridgewater, from seeds received from Nepal. Much has been said regarding the culture of this plant. Some persons have found it rather difficult of management, from the precise temperature which seems to be most suitable to its successful growth being intermediate between that of the stove and the greenhouse. In general, however, a warm greenhouse, with frequent pottings, in a mixture of peat, sand, and loam, and the use of plenty of drainers, will ensure rapid growth and splendid flowers. When young plants are required, cuttings should be taken of the half-ripened shoots, which will strike root in sand, under a bell-glass, without bottom heat. They should not be exposed to the direct rays of the sun, nor be kept too moist.—*T. K. S.*

Zinc Tallies.—Tallies cut out of sheet zinc are very cheap and durable; and as all our readers may not possess the receipt we will now state the ingredients of which the ink to be used on zinc is composed. One part of verdigris; one part of sal ammoniac; half a part of lamp-black; ten parts of water. These are to be well mixed in a mortar and kept in a bottle, closely corked, for use. It may be used with a pen, and is very durable.

The First Double Dahlias.—Figures of a single and double Dahlia have been found in an old work on the natural history of Mexico, published at Rome in 1651. In this work there is a very correct figure of a double Dahlia, under the name of *Cocoxochitl*, with violet-coloured ray florets, and a very conspicuous yellow disk. It is thus clear that double Dahlias, so far from being the result of European culture, were common in Mexico, before the plant was introduced into Europe.



The Floricultural Cabinet.

DECEMBER, 1858.

ILLUSTRATION.

TULIP, CHELLASTON BEAUTY.

CHELLASTON BEAUTY is a first-rate byblœmen Tulip that should be grown in every bed. The feathering is very regular, of an intense deep purple almost approaching to black, and the petals are of good firm substance. Tulip growers are now engaged in defending their beds from frost and snow, and the usual rough weather which may be expected at this season. The best defence we have seen is a framework of iron rods, made to screw together, and let into four or six stones at the angles and middle of the sides, according to the length of the bed. Over this a screen, made to roll up, of good mats is attached to a cross-bar, running along the top from one end to the other. If kept neatly painted such a frame will endure a lifetime, may be put up with very little trouble, and always looks neater than any other.

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ON THE CULTURE OF THE RUSSELIA JUNCEA.

BY MR. WILLIAM GREEN, PLUMSTEAD

THE usual season of the flowering of this plant is during the summer months, from the end of May till the beginning of September; but by the following mode of culture it may be brought into flower at almost any season of the year. It may be propagated both by cuttings and layers, which may be inserted in a mixture of leaf-mould and peat, at almost any season of the year, but they grow the quickest if planted in March or April.

Make the cuttings of the young wood, cutting them off at any length deemed most convenient, plant them in a pot of soil as above, and plunge the pot in a hot-bed, with a brisk heat, and if the cuttings are covered with a bell-glass they will strike the readier; if the heat is a moist one, and a glass be put over them, they need scarcely be watered until after they are potted off. The time required to strike them is about three weeks, and never exceeding a month.

Layers are formed by covering some of the shoots with soil in the pot the plant grows in, and in a month or six weeks they will be ready to separate. The best soil is a mixture of sandy heath-mould, and finely sifted leaf-mould.

During their season of growth give them a good stove heat, and syringe them overhead every day, and continue this process, potting as often as the plants require it, until they have grown to a good size, say a foot and a-half or two feet high, which will be in about two months; then remove them to a greenhouse or other cool situation, where they are not exposed to the outer air, not only cease to syringe, but give very little water at the roots. When the plants have stood in this cool temperature about three weeks, (which should never exceed 60°, or be below 45°), remove them again to the stove, plunge them in the tan-bed, or other convenient bottom heat, give them about 70° temperature, and abundance of light and sunshine. In this increased temperature again renew the syringing, and occasionally water at the roots with clear, but weak, liquid manure, and abundance of flowers will speedily be produced.

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PRACTICAL HINTS ON THE CULTURE OF TROPICAL FERNS.

BY R. T. W. T.

THERE are two methods of propagating ferns—*by division* and by seeds. The first is simply dividing the roots, and planting the divided parts: but in the second the following particulars should be kept in mind. Two ways of sowing the seeds (sporules) are followed by practical men; the first, though answering in many cases, is not so certain of success as the second. The first method is to cover the pots with moss, after having sown the seeds on finely sifted sandy heath-mould; for the second method of sowing the seed, take notice of the following rules:—

Burn the soil in an oven, or other conveniency, to destroy the seeds of weeds, or any wild species of fern. Select heath-mould of a sandy nature, and if necessary add a quantity of fine sand to it, and let the whole be sifted very fine. Fill suitable sized pots up to the rim with the fine soil, and lay a few large pieces on the top, pressing them a little down, but not so as to destroy the inequality. On this uneven surface sow the seeds, but do not cover them with any soil, set the pots in feeders, and place them in a hot and shady part of the stove, where the sun can never shine upon them, and they will soon grow. From the extreme minuteness of the seeds, it is not advisable to place a bell-glass over them, as the condensation of moisture might destroy them, but a hand-glass, by allowing more room for the escape of the vapours, might be placed over them with advantage. Never pour water over the surface of the soil; the best is to put a little into the feeders, and the soil will absorb sufficient for vegetation. When the plants are sufficiently grown to pot off, take them up with great care, so as not to injure the roots, or some of the more delicate kinds will be a long time before they recover. The best soil is sandy heath-mould, mixed with a small portion of light loam from a pasture, and it is preferable to sift the loam pretty fine, before mixing it with the heath-mould. It is necessary that attention be paid to drainage, as the plants will not thrive if the water supplied become stagnant. Place the plant pretty firmly in the pots, by pressing the soil about them, for although in their natural situations they often grow very loosely, yet they thrive better by being firm in the soil. Water them with care, only at such times as they evidently require it; and occasionally syringe over the leaves to prevent the attacks of red spider, to which they are liable. The situation they occupy should be shady; it is not necessary that the sun should ever reach them, and with very little attention they will thrive well.

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A SELECTION OF STOVE CLIMBERS.

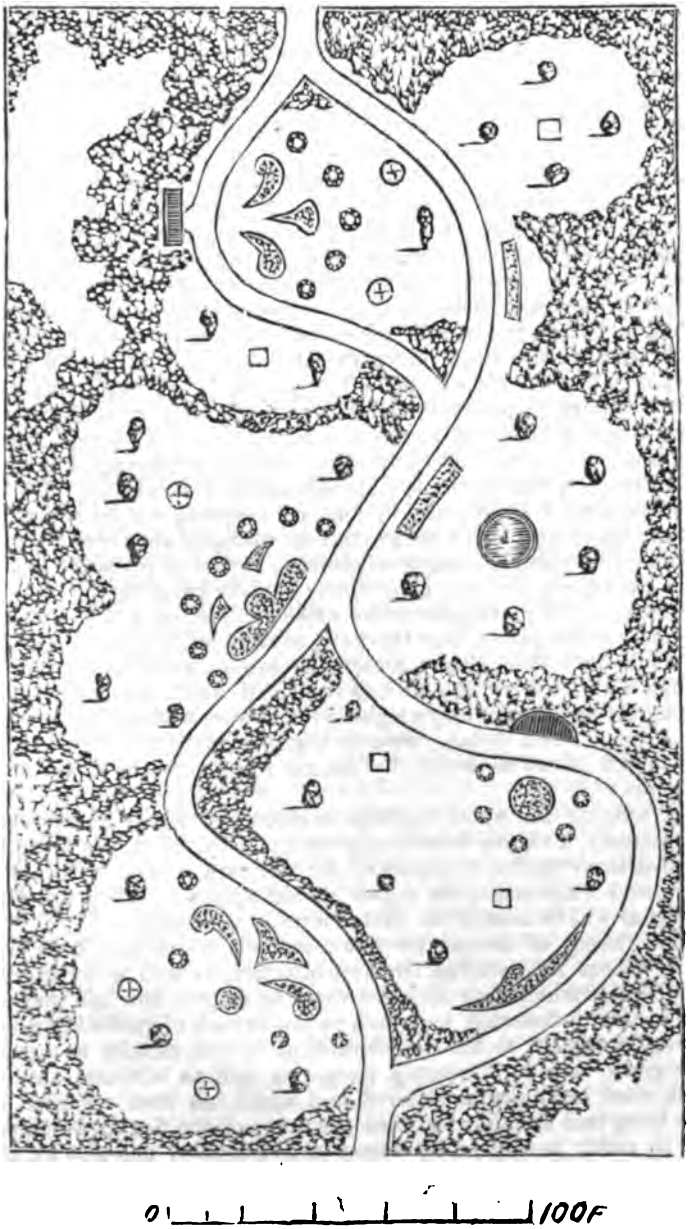
BY A NOBLEMAN'S FLOWER GARDENER.

Allamanda cathartica,	yellow,	June,	fine flowering species.
Amphodus ovatus,	purple,	April,	rather tender.
Aristolochia trilobata,	purple,	June,	Both species require strong heat.
„ fœtens,	yel. & brown,	July,	
Argyreia cuneata,	purple,	March,	a free flowerer.
Bauhinia racemosa,	white,	June,	suitable for pillars.
„ scandens,	white,	June,	suitable for pillars.
Bignonia gracilis,	yellow,	April,	Rather hardy. All the species of Bignonia require a deal of room to grow.
„ venusta,	orange,	Sept.	
„ paniculata,	purple,	April,	
„ æquinoctialis,	yellow,	April,	
„ Chamberlaynii,	yellow,	April,	
Columnea hirsuta,	scarlet,	Aug.	Require little water in winter.
„ scandens,	scarlet,	Aug.	

Cylista scariosa,	yellow,	April,	suited for pillars.
Combretum purpureum,	scarlet,	June,	Very splendid. All the Combretums are of rather slow growth, and somewhat tender.
„ paniculatum,	scarlet,	Jan.	
„ grandiflorum,	scarlet,	Feb.	
„ Afzelii,	scarlet,	Feb.	
„ comosum,	purple,	May,	
„ elegans,	scarlet,	April,	
Echites stellaris,	rose cold.,	Aug.	handsome, slow grower
Hoya carnosa,	white,	June,	honey flower.
„ Pottsii,	white,	June,	Scarcely so good as carnosa.
Ipomæa Horsfalliæ,	rose cold.,	Oct.	splendid species.
„ alba-cærulea,	white,	June,	fine large flower.
„ speciosa,	purple,	July,	free flowerer.
Jasminum Sambac,	white,	Jan.	fragrant and delicate.
Jonesia scandens,	scarlet,	June,	splendid plant.
Manettia glabra,	scarlet,	Oct.	a very free flowerer.
Morenoa globosa,	scarlet,	May,	very handsome.
Olax scandens,	white,	Jan.	pretty species.
Passiflora kermesina,	crimson,	June,	A very beautiful species.
„ Loudonii,	scarlet,	June,	beautiful species.
„ princeps,	scarlet,	June,	very free flowerer.
„ Buonapartea,	purple & red,	April,	handsome species.
„ phœnicea,	red,	May,	free flowering species.
„ alata,	red & white,	May,	good fruit bearer.
„ quadrangularis,	red & purple,	May,	fruit bearer.
„ edulis,	white,	May,	good fruit bearer.
„ Andersonii,	striped,	June,	handsome species.
„ Cavanillesii,	orange,	July,	handsome species.
„ longiflora,	white,	May,	slow grower,
„ Merucuja,	scarlet,	June,	good fruit bearer.
Pergularia odoratissima,	green,	June,	very fragrant.
Thunbergia alata,	yellow,	all year,	All the species of Thunbergia are beautiful, very free flowerers, and suited for either trellis or rafters.
„ alba,	white,	all year,	
„ Hawteyana,	scarlet,	May,	
„ coccinea,	scarlet,	May,	
„ grandiflora,	blue,	June,	
„ purpurea,	purple,	May,	
„ fragrans,	white,	May,	
Phisianthus albens,	white,	Aug.	rather scarce.
Quisqualis indica,	rose,	May,	resembles Combretum
Stigmaphyllon aristata,	yellow,	June,	beautiful plant.
Thryallis brachystachys,	yellow,	Oct.,	suited for a rafter.

DESIGN FOR A SHRUBBERY FLOWER-GARDEN.

BY T. RUTGER, ESQ.



WITH regard to designs for the flower-garden, it may be seen that the geometrical style is more generally adopted than that of any other, and perhaps it may be considered more suitable to the present mode of furnishing the beds, particularly in the case of planting the different kinds of flowers in masses; but here considerable judgment is required, in order to harmonize the different colours, so as to balance each other, and to give them the most striking effect; but in some cases, sites for these kind of gardens may not conveniently be appropriated, and in other cases, to adorn the shrubbery with flowers may be preferred by the proprietors. In the design accompanying this article, an attempt is made to show what might be done to make the walks through a shrubbery attractive. It will be perceived that portions of lawn are given, whereon groups of flower-beds are shown, also various sites for articles of embellishment, such as vases, statuettes, etc.; also a basin with a fountain for gold and silver fishes, with a few choice shrubs on the lawns; two garden seats are also given, one covered and the other open; and small circles may be seen placed round the groups intended for standard roses; a solitary clump is here and there placed along-side of the walks. This, I think, is sufficient by way of explanation for the design given, but a word or two may not be amiss relative to the placing of clumps on the lawns, where lawns are introduced in a shrubbery. I have witnessed a great indifference by some in respect to this, by observing the beds apparently laid down at random, sprinkled about on the lawn without any regard to design whatever. It will be perceived in the sketch here given, that in a general way I prefer grouping the clumps, and placing them contiguous to the walks; and where a single clump is given it is also placed near the walk, so as to bring both the groups and single beds immediately under the eye of such as like a walk through the shrubbery, the obvious reason of which is, that persons walking through, may enjoy a sight of the flowers without trespassing on the grass, which in damp weather might interfere with the pleasure they might otherwise enjoy, by having the flowers in a line with the walks.

In forming the walks through a shrubbery where short turns are necessary, a reason should be given for it, by the shrubs being so disposed as to render it necessary for the turn to take place; and where two walks meet, the angles should always be filled up with shrubs, as will be seen in the sketch already alluded to.

The variety of designs for flower-gardens, which have been produced almost *ad infinitum* by floriculturists, as well as by others, whose fertile minds have disposed them to employ now and then an hour in their delineation, has given to this branch of gardening much interest in respect to the distribution of flowers suitable to the designs given, both as it regards masses as well as mixtures, and for which much ingenuity is required, and which has been regarded, so as to bring into harmony the various colours of the flowers which are now so richly multiplied by means of hybridising, and also by the introduction of new species which are constantly accumulating by importation, and thus a wide field is open to the floriculturist, both for amateurs, and for such as compete for prizes at the numerous floricultural shows now in vogue. As many of the sciences have their gatherings, by means of which great advancements are making in the scientific world, so in the case of floriculture, the annual or more frequent gathering of floriculturists at the shows for prizes, occasions a great stimulus to florists, and particularly to those who compete for prizes.

There is something striking in the Allwise Creator's arrangements in the three kingdoms of nature, viz.—the mineral, animal, and vegetable. In the first of these man can do but little *comparatively*, except to embellish the precious gems contained therein, and by chemical process to change many of their constituent parts. In the second, man's capabilities seem to be enlarged, from which improvements are made to a large extent in the various breeds of animals for the use of man, both for food and amusement, but still there is a point fixed which seems to say "Thus far thou mayest go, but no farther;" yet, in the vegetable creation, there appears to be no restriction whatever, either with edibles, fruits, or flowers, for each of which a wide field is continually open for improvements, and vast have been the acquisitions made by the ingenuity of man in this department of nature, but none of them equal in variety to that of flowers; and such has been the fascination which they have exercised over the mind, as to draw out numerous poetic effusions from the admirers of Flora, for a proof of this see "Emblems and Poetry of Flowers," a small volume published in Edinburgh, in 1844. Among the many short poems it contains, one named "Use of Flowers," by Mary Howitt, well merits a place among the poetic effusions contained in the book, many of which are by authors who stand high in the estimation of the lovers of poetry; in short, flowers are more or less attractive to every lover of nature, and in this our day, scarcely a month passes by but that some new variety is introduced to the admiration of the floriculturist, which occasions a further stimulus to the admirers of Flora, in prosecuting their favourite pursuit, in order to add fresh trophies of skill to admire, and beauty to attract the lovers of the art in this lovely and interesting branch of gardening, in the pursuit of which I have spent many pleasing hours, in propagating and collecting the various species and varieties of the most admired flowers of the day, in which my practice was in connection with the cultivation of them, and as a proof of my esteem for Flora, the queen of flowers, I will conclude with a poetic effusion of mine as addressed "*To the Crocus.*"

TO THE CROCUS.

Gay harbinger of rosy spring,
What pleasures do thy presence bring;
How sweet to view thy golden head,
Out peeping from thy lowly bed.

When Sol's bright rays resplendent shine
Upon thy lovely form divine.
Whilst thus array'd in rich attire,
Proud, emulate his noble fire!

As, on her purple wings upborne,
Aurora bright proclaims the morn,
Diffusing o'er the landscape gay
The tokens of approaching day;
So thou, fair flower, spring's eldest born,
In beauty clad proclaim'st the morn,
And lovely 'neath the azure sky,
Thy renovated sweets display.

Thy charms tho' destined to decay,
Ere spring leads on the rosy May;
Yet know, sweet child of young creation,
If mem'ry yields thee consolation,
Thousands of flow'rets o'er thy shade,
Shall then in splendour stand array'd,
And sweetly o'er thy tomb exhale
Rich odours to perfume the gale.

Oh, let me then to fancy fly,
Borne on the wings of extacy;
Methinks I see reviving spring,
Her flowing cornucopias bring;
Whilst thro' the woods the feather'd choir
Salute with joy the happy hour,
That smiles propitious on their mirth,
And gives their gay Vertumnus birth.

ON THE CULTURE OF EUPHORBIA JACQUINIÆFOLIA.

BY L. T., JUN.

THIS is by far the most interesting plant when in full bloom that the stove produces, taking into consideration the minuteness of the flower, which, though small, is most beautiful, and especially so in blooming at this late season of the year when there are so few plants in flower. With a little check, a very nice shaped plant may be obtained. I received a plant last year, and found that all the leaves had fallen off, I therefore determined to try if I could not improve it. I placed it in a bark-bed, when it soon began to show signs of life; having taken it out, I potted it in three-fourths peat and one-fourth rich loam, with a little sand mixed with it. It soon began to grow rapidly, and when it had attained about four feet high, I placed sticks two feet long in the pot and bent the shoots backwards and forwards, at the same time tying them in that position. In about three weeks, shoots shot out to the amount of about thirty. It is a plant that requires very little moisture—only just enough to keep it from flagging. In striking cuttings, care should be taken to let the milk, which gushes out on cutting them off, dry up, as they are liable to damp off, if this be not attended to; then place them in the pot in a bark-bed, with a bell-glass over them, and they will strike freely.

HOW TO MAKE A GOOD HOT-BED.

BY AN OLD SUBSCRIBER.

"MAKE a hot-bed;" this is a very common direction to be found in most works treating on gardening, which to the beginner and to many amateurs is almost as incomprehensible a thing as if they were told to square the circle. The reason is, that these authors consider the making of a hot-bed so well known as to need no instructions. To make a *good* hot-bed, however, requires attention to a few general rules, which it may not be out of place to detail in the *Cabinet*, being a work that finds its way into so many hands. We cannot deny that the hot-water apparatus possesses many advantages; but still, and without reference to its expense, it will be a long time before the old-fashioned hot-bed falls into positive disuetude. There is, however, an art in the use and management of the hot-bed, from which the hot-water apparatus is wholly exempt, and the basis of that art is the maintenance of the proper temperature, never allowing it to fall too low, nor to rise too high. There is, however, a great advantage which the hot-bed possesses over the hot-water; it is, that the dung which has been used for its construction is just as fit for use when done with, or at any rate nearly so, as it was before it was formed into a hot-bed. It is true that inexperienced persons in forming hot-beds of dung too frequently use the material in an unfit state; sometimes it has lain too long in the stable, heap, or hold, and has begun to scorch inside: sometimes it is taken from them in a pretty good condition and laid in a heap at once, where the heat would be violent and short lived. The proper condition can only be attained by shaking out every fork-full of it loosely, in order to let the air have a thorough passage through it. Every foot or two, as the new heap is made, should be sprinkled with water, unless it be already very moist. It should then be turned over, and shaken out until it be all in one heap again; here it will ferment, and by putting a long stake into it to reach the centre, you may feel whether it be getting too warm. If it be heating too much, shake it all out again into another heap, and water it where it dries. In shaking it out the top will go to the bottom of the new heap, and you should contrive also to have the outside stuff of the old heap in the middle of the new, and *vice versa*. Water every foot of it, by gently sprinkling with a watering pot, with the rose on the spout; again put in the stake, and when the heat is getting moderated a little, you may mark out your space and build the heap for the reception of the frame and glass, but as you shake it out this time, keep putting it down with the fork, not to keep it too close, but to keep it well together. The space you intend to occupy should be marked out with four stakes stuck into the ground the height you intend it to be, or thereabouts; and this space should be about one foot clear all round the frame, and it should be built quite four feet high at first; it will sink nearly a foot. In building this square heap, you should be careful to press down all over alike; when this is done, the stake should be driven in to reach the centre of the heap, in order that you may draw it out to feel the heat every day; and when it raises a little, put on the box or frame, and three inches of good loamy soil from rotted turfs; whether you be going to grow things in pots, or in the soil itself, or sow seeds in it, it is of no consequence; the soil keeps down the rank steam which would come through the dung, if not so covered. The frame glass should then be put on, and covered closely in the daytime; if the heat be too strong, it may be wetted considerably, but if it be only moderate, lift the light a little behind, to let out the steam. The bed, in this state, is fit for anything, for dahlias to break or strike in; annuals sown in pots will do after the heat is gone off a little; but for balsams and coxcombs, which are pricked out nearly as soon as they are up, it will not be too hot now. I am not here giving the management of the contents of the bed, but rather of the bed itself. When the heat declines, which, as a matter of course, it will in time, it must be reinstated with fresh linings of hot dung; a supply of which must be kept for the purpose. With a fork you must remove all the dung that projects in front of the frame, straight down to the ground, and even undermine it a little, and against it pile up hot dung to fill the space occupied by that which was taken away, and there must be more in quantity, so as to form a bank up against it. This will revive the heat a good deal, and when it again declines, serve the back the same way, and eventually the two ends also. By these means the heat may be revived, and kept up for a considerable time, because the same process may be repeated two or three times over, so long as the principal mass of dung be not absolutely saturated, but a good deal of this may be taken out by undermining small portions at a time, and tucking in hot dung in the place made vacant. However, unless it be for plants actually growing in the soil, it is better after the first linings all round to make up fresh beds to succeed. It is only in cases where the plants are actually immoveable, that we must spend a good deal of time and trouble to renew and retard heat; for if the subjects be in pots, it is far easier to make new beds and remove the plants than to keep up the heat of old ones, and more satisfactory if dung is plentiful.

* * *

NOTES ON NEW AND RARE FERNS.

BY MR. W. S. PRESTOE, VICTORIA PARK.

(*Continued from page* 299.)

PHYMATODES (Presl. J. Smith). *Polypodium* (Linn.), *Drynaria* (Fee), *Chrysopteridis sp.* (Link.).

Generic Description.

SORI round, naked (sometimes furnished with small peltate scales), immersed in the substance of the frond, so as to form an elevated protuberance on the upper surface. Veins and venules irregular, compound, anastomosing, internally, more or less obscure; forming small angular areoles with one or more small, simple, or forked free veinlets in each areole; the sporangiferous receptacle situated at a point where several reticulated veins radiate; fronds articulated near the rhizome, simple, pinnatifid or pinnate, membranaceous or coriaceous, transparent or opaque, sometimes thinly furnished with small peltate scales; rhizome creeping, fleshy, thinly furnished with large brown scales. This genus is readily told from its allies by its fine, compoundly anastomosing veins and small irregular areoles; from *Drynaria* by the pinnæ not being articulated with the rachis or costa, and wanting the Oakleaf-like appendages so conspicuous in that genus. This forms a magnificent group, of easy culture, and extremely free growth.

P. nuda (J. Smith), *Pleopeltis nuda* (Hook.), *Polypodium loriforme* (Wall.), *Drynaria Fortunei* (T. Moor), *Polypodium leiopteris* (Kunze). A native of the East Indies.

P. excavata (J. Smith), *Polypodium excavatum*, *Polypodium phlebodes* (Kunze), *Polypodium scolopendrinum* (D. Don), *P. nuda* (Hort.). A native of East India and Mauritius.

P. Billardierii (Presl.), *Polypodium Billardierii* (R. Brown), *P. scandens*, *P. diversifolium* (Wall.), *P. phlebodes* (Hort. non Kunze), *Drynaria Billardierii*. (Hort). A native of Tasmania and New Zealand.

P. geminata (J. Smith), *Polypodium geminatum* (Schrad.), *P. iteophyllum* (Link.), *P. iteophylla* (Hort.). A native of Brasil.

P. saccata (J. Smith). Fronds pinnatifid, obovate, pendulous, with long stripes, from two to four feet long; lacineæ, or leaflets, ovate, lanceolate, acuminate, caudate, membranaceous; sori deeply immersed in the substance of the frond, forming very conspicuous protuberances on the upper surface. A native of Java; this is one of the most noble of all the ferns, its broad obovate and pendulous fronds are truly magnificent; it is, however, very rare, and I am not aware of its being in the trade.

P. longissima (J. Smith), *Polypodium longissimum* (Blume), *P. melanoneuron* (Mog.), *Drynaria rubida* (J. Smith). A native of the Malayan Archipelago.

P. longipes (J. Smith), *Chrysopteris longipes* (Link.), *Polypodium phymatodes.* A native of the same Archipelago.

P. terminale (J. Smith), *Chrysopteris terminale* (Link.). A native of the East Indies.

P. cuspidata (J. Smith), *Polypodium cuspidatum* (D. Don), *P. leiorhiza* (Wall. and Presl.). A native of the East Indies. The genus *Phymatodes* requires the same cultural remarks as *Phlebodium.*

ON THE CULTURE OF THE CAMELLIA.

THE most successful and generally adopted method of propagating this beautiful family is by inoculating or grafting: by this means each variety is perpetuated. New varieties are only to be obtained from seeds, and as these seldom ripen in any quantity in this country, the propagation of new varieties is consequently a matter of some importance. As in most cases it is from single flowering plants that seeds are to be expected, although sometimes the semi-double flowers also produce them; the common single red is the most prolific in affording seed. Sometimes seedlings so obtained are used only for stocks whereon to work other rarer kinds. Stocks, however, are for the most part obtained by nurserymen from layers of the common single red, which they often plant out in pots for that purpose, or from plants or cuttings. Camellias are sometimes budded, but for the most part are either grafted or inarched, and in either case, the process of tonguing is dispensed with, as weakening the stock, and that mode termed side grafting is preferred. It may be observed that of all the stocks for this or any other purpose, those obtained from seeds are the best; but as the seeds are two years coming up, cultivators seldom wait. Sometimes the double Camellias are obtained from cuttings; but this is a tedious and precarious method of increasing them.

The proper time for grafting or inarching Camellias is the spring, when the plants have done flowering and beginning to grow.

The time that elapses before an union of the scion and stock completely takes place is various in different sorts, and more particularly in regard to the state of health and vigour in which the plants may be, as well as the favourableness of the season. Observation alone can dictate when the clay and bandage of matting should be removed; there is an evil in allowing either to remain on too long. Camellias will form an union when the branches are of considerable size, and very large plants may be speedily formed by inarching several whole plants upon one common stock. This process is very prevalent round London, and when the operation is perfectly performed, and the plant cultivated, specimens of large size may be expected; certainly a few large specimens of this plant, where there is convenience for keeping them, are better than a number of small ones, which take up the same room, and never can produce so pleasing an effect.

In Mrs. Loudon's "Gardening for Ladies," we read, "Camellias are now frequently grafted in a manuer first practised in Belgium, but afterwards greatly improved in the nursery of M. Soulange Bodin, at Fromont, near Paris, and which has the advantage of producing flowering plants much sooner than by any other plan. This mode of grafting, which is called *graffe etouffee*, may be practised at any season, and on a stock of any age, from the cutting of a year old, to the long-established plant, provided it be healthy, and of sufficiently-small size to be grown in a pot. There are two modes of performing this kind of grafting, the first which is called *la graffe etouffee en fente*, and which is a kind of cleft grafting. The head of the stock is cut off close to a leaf, which has a strong healthy bud on its axil. The cut is made sloping upwards to the leaf; and on the preservation of this leaf and bud, a great part of the success of the operation depends. The stock is then split, in face of the leaf and bud, to a depth equal to two-thirds of its thickness, and the scion, which has been previously cut with a sharp knife into the shape of a wedge terminating in a narrow point, is inserted. The heart of the scion stock, and that of the scion, are united as closely as possible, and the two are tied firmly together; the wound in the scion, where the head was cut off, being covered with pitch to prevent the possibility of any moisture entering the wood, though no pitch is allowed to touch the point of partition between the scion and the stock, lest it should prevent the uniting of the bark. As soon as the operation is finished. the pots containing the stock must be plunged into a bed of tan, lukewarm if it be in the spring, and hot if it be in winter, and covered over closely with a mat or hand-glass. The glasses ought to be taken off every second day and wiped, as too much humidity will make the young plants damp off, and the glasses may even be left off for an hour or two occasionally, If the plants appear too moist, the second mode of performing this kind of grafting, and which is that generally practised in autumn in Belgium, is called *la graffe etouffee en placage*, or *la graffe des Belges*, and is a kind of side grafting, or rather of inarching. It consists in cutting off the head of the stock, or the end of one of the branches, in a slanting direction, leaving a leaf and a bud above the cut on the higher side, and then cutting the scion into a slanting shape, so as to fit the wound in the stock exactly, and binding the two closely together with a strip of baste matting, but without using any other covering. As soon as the operation is finished, the pot containing the stock is laid horizontally on a bed of dry tan, or on a bed of dry moss, the branches lying on the surface, and the pot being half buried in the tan or moss; the grafted part being covered with a bell-glass, stuffed round the bottom with the moss or tan, so as to prevent a particle of air from entering. This close covering is kept on for a fortnight, three weeks, or a month, according to the season; at the end of which time, the graft will be found perfectly united to the stock. Air is then admitted to the graft by degrees, by first lessening and then removing the moss from the glass. The glass is afterwards taken off, and the pots set erect."

The great points to be attended to in this mode of grafting are, giving the plants bottom heat, and covering them closely, whence the name of *graffe etouffee*, as the plants appear almost stifled for want of air. According to both modes, as soon as the graft has taken, the leaf and bud of the stock, above the insertion of the scion, which was left on to draw up the sap, are cut off, and the plant is then in a fit state to be removed to the greenhouse, or any other place where it is to flower.

The Camellia is a plant that requires to be well supplied with water, and yet it cannot endure stagnant moisture about its roots: this will soon prove the death of the plant. When the plant is grown in pots, the drainage should be abundant, that is, the pots should be nearly a quarter filled with potsherds or gravel. The most preferable soil for the Camellia is peat earth and sand, in which a small portion of vegetable mould and charcoal may be mixed; that is, if it be desired to possess plants of a very luxuriant growth. It is advisable to pot the plants high, so as to permit the collar of the plant to be completely above the rim of the pot. It is a bad practice to allow saucers to the pots, and this rule should be observed not only with Camellias, but all other plants. It is true that watering plants in rooms without saucers is the cause of considerable damage to the furniture, but the plan ought to be invariably adopted, where saucers are used, to empty them of the water as soon as it has drained through the mould. Particular care should be taken to give a copious supply of water to the plants every day, during the time that the buds are swelling; and if this process be neglected, considerable risk is run of the buds dropping off. The watering may in some degree be dispensed with, when the flowers begin to expand, but not wholly so, but only supplied in a more moderate quantity. On the other hand, when the plants are throwing out their young shoots, recourse should be had again to a copious supply of water; when they have ceased to grow, it will then be necessary merely to water them once or twice week, until the flower buds again begin to swell. It would be advisable during the time that the plants are growing, to set them out in the air, and the leaves syringed all over two or three times a-week. Particular care, however, should be taken, not to follow this practice during the time the sun is on them, or at all events, not to place the plants in the sun whilst they are wet, as the rays of the sun, acting on the water, will act as a lens, and actually wither up the leaves. It must be particularly observed that the roots of Camellias are in general rather weak, and consequently are easily injured; at the time, therefore, when the plants are repotted, the most particular care should be taken, not to bruise the roots, and to deprive them of all those that are in any way injured. If, previously to repotting, on turning out the plants, no white roots should appear on the outside of the ball of earth, the earth and decayed roots should be shaken, or cleared away, till the good roots be seen, when a careful examination should be taken of them, and all the bad parts cut away. The plants should then be repotted, in pots not exceeding by more than an inch the diameter of the ball of earth left, and round the sound roots; and they should be well drained at the bottom with very small potsherds or clean gravel. Small Camellias should not be shifted oftener than once in two years, and large ones, that is, those above two feet high, not oftener than once in three or four years; but if the earth in the pot appears to have sunk, a little vegetable mould may be laid on the surface. The usual time for shifting Camellias is just when they have done flowering, before they are beginning to send out their young shoots. When planted in the free ground in a conservatory, they will not require any other care than regular watering, and syringing the leaves once or twice a-week. When planted in the open air, the roots should be carefully protected by straw during frosty weather. The hardiest kinds, and the most suitable for planting in the open air, are the single red, the double red, and the double white. The tenderest of the common kinds are the beautiful apple-flowered variety (*Camellia sasanqua*), and the single variety of this species, the flower of which resembles that of the tea-plant. Camellias are very often infested with insects, particularly a kind of black aphis; the only remedies for which are fumigation and constant syringing. The leaves of Camellias should be always syringed on the under side, as well as on the surface, as they curve inwards a little, and thus afford a shelter to insects, from which it is very difficult to dislodge them.

REMARKS ON POPULAR FLOWERS AND OLD GARDEN FAVOURITES.

BY MR. EDWARD SHEPPARD.

THE AURICULA.

> ——— "Auriculas, enrich'd
> With shining meal o'er all their velvet leaves."
>
> THOMSON.

THIS favourite offspring of vernal Flora is a native of the icy summits of the Alps, from whence the Flemish gardeners first procured it, and brought it into cultivation, before its beauties were known in other distant lands, or regarded in its native country. But when it was once ascertained to be a plant on which nature plays her frolics, and which she loves to paint in all the varieties of whimsicality and diversity of rich hues, it was eagerly sought after by all the florists of Europe, and was soon brought to the highest state of perfection by the English cultivators, who, in the flowering of the Auricula, have left the Flemings far in the background.

At what exact period this *Primula* of the mountains was first brought to England is uncertain, but Gerarde speaks of it as no stranger in 1579, and observes "it do grow in our London gardens." This author calls it "Beare's-eares, or Mountaine Cowslips, and *Auricula Ursiflora.*" The leaves of this plant are thought to resemble the ears of the bear, on which account it received the Latin name of *Auricula ursi.*

When this plant was established as a favourite in the garden, it was sought for on most of the continental mountains. *Carolus Clusius* found it on the mountains of Germany, and it has since been discovered in Switzerland, Carniola, Savoy, and Piedmont.

The Art of Floriculture has been so happily bestowed upon the Auricula as to render it one of the flowers of highest esteem, and it is deservedly admired for its rich velvet corollas, some of which are of the darkest purple, others of a fine blue, bright yellow, delicate lilac, olive brown, pure white, variegated, and bordered or mottled as variously as the Tulip.

Nature has guarded these delicate flowers from the scorching heat of the sun's rays by sprinkling them with a fine powder, and the leaves of most of the kinds of Auricula are kept cool by the same wise precaution.

The Auricula is generally observed to be brought to the highest perfection in the neighbourhood of manufacturing towns, where the mechanic leaves his labour to attend and admire the beauties of his stage. In these towns an innocent rivalship generally prevails as to who shall rear the finest specimens of this plant, which, instead of dissension, produces social neighbourhood, and exchange of civilities, for it is

> "A fair ambition; void of strife or guile,
> Or jealousy, or pain to be outdone."

It is recorded in the history of this plant, that Mr. Henry Stow, a gardener, near Colchester, reared, previously to the year 1768, some plants of Auricula that produced one hundred and thirty-three blossoms on one stem; and in the year 1821, an extraordinary flower of this kind was gathered in the garden of Mr. Tamby, of Bath; it had eight distinct stalks, combined in one flat stem, completely incorporated together, and bearing a calyx containing one hundred and seven petals; but this would be considered rather a singular than a perfect flower. Lancashire has always been noted for fine Auriculas.

The best season for propagating the approved sorts of the Auricula is about the end of July, or beginning of August, when the roots may be divided, or rooted slips taken off, and planted in pots filled with a good compost, which should be composed of a fresh loamy soil, and perfectly-decomposed cow-dung, equal parts of each, adding to the mixture one-tenth of sea or river sand. Good leaf-mould may be used instead of cow-dung, but the whole should be well mixed and exposed to the frost the winter before it is used; but, as Hogg observes, the cultivators of these flowers are not more numerous than their compost is various, and quackery, even in the growing of flowers, has as many followers as in any other line.

We are told by some growers of the Auricula, that sugar-bakers' scum, goose or pigeons' dung, sea-sand, rotten willow-trees, night-soil, dung steeped in butchers' blood, etc. etc., are all necessary to produce fine flowers; but, from our own observation, all that is requisite seems to be a rich and light mixture that has been well frozen, and frequently turned over. Curtis tells us, that he has seen the strongest Auriculas produced from the following ingredients:—two-thirds of the rotten dung from old hot-beds reduced to fine mould, one-third containing equal parts of coarse sand and peat, or bog-earth, such as is used in the culture of heaths, mixed well together by shifting or screening, and suffered to be well aired by frequent turnings during the frosts of winter. The pots recommended by Emmerson for large blooming plants are those of about eight inches high, five and a-half diameter at the top, and four and a-half at the bottom, outside measure. Maddock recommends the Auricula to be potted immediately after the bloom is over, and repotted every year, to invigorate the plants by fresh earth. The Auricula is by no means a tender plant, and it loves a free air rather cold than warm, yet it is advisable to secure those in pots from severe frost, and a shed open to the north or east is preferable for blooming them than either a south or west aspect; but, as a winter repository, they should have the advantage of a south aspect, and be kept very dry during the months of November, December, and January, as in case of frost the weather has less power on the roots. In February it is advisable to top-dress the pots with fresh compost, and when the season is mild, to allow them to receive gentle showers: during the time of flowering, the pots should be moderately watered two or three times a-week.

Every admirer of these flowers should endeavour to raise new varieties from seed, which should be preserved from the strongest plants of the handsomest kinds, and be kept separate from inferior sorts, to prevent accidental impregnation. As the capsules ripen they should be cut off singly, and kept in a dry situation until the time of sowing, which is principally performed in the month of February. "Maddock sows this seed in boxes, and covers it as light as possible; and sets the boxes in a hot-bed, preserving a moderate and equal degree of warmth both day and night, admitting fresh air occasionally. The advantage of this mode is, that it forces every live grain into vegetation in about three weeks if the warmth of the bed be properly kept up; whereas, by the more usual mode of exposure to the open air, the greater part does not vegetate till the second year; and the weaker seeds, which are probably the most valuable, seldom vegetate at all.

"The earth and seed must always be kept moderately moist, but never very wet: the best method of watering it, is by means of a hard clothes-brush, dipped into soft water, which has had its chill taken off by standing in the sun; the hair side being quickly turned upwards, and the hand rubbed briskly over it, will cause the water to fly off, in an opposite direction, in particles almost as fine as dew. If the surface of the earth in the boxes is inclining to become mossy or mouldy, it must be stirred all over very carefully about as deep as the thickness of a shilling. When the young plants make their appearance, it then becomes necessary to give them very gradually more air, in order to harden, and render them fit for an entire exposure to it, which they will be able to bear in a fortnight or three weeks, at which time the box should be taken out of the frame, and placed in rather a warm situation, though not too much exposed to the sun, till towards the end of April, when it may again be removed to a cooler aspect, where it can only receive the sun till nine o'clock in the morning; and in May, if the weather is hot, it should be placed in the most cool and airy part of the garden, not neglecting at any time to keep the earth moderately moist, but at the same time preserving it from violent rains whenever they occur. As soon as any of the plants appear with six leaves, such should be taken out from the rest and transplanted into other boxes, filled with the compost, about two inches distant from each other; and when they are again grown, so as nearly to touch each other, they must be a second time transplanted into larger boxes, or small pots, where they should remain till they bloom, which will generally happen the following spring; but their full merit will not be seen until the second year, when the finer kinds may be marked for the house, and the inferior varieties for the open borders."

Some cultivators of these flowers sow the seed in pots, about six inches over the top, and six deep, filled half full with coal ashes or cinders, for the sake of drainage. The seed being covered as thin as possible with compost, and the pots covered with a hand-glass, and placed in a situation where it receives only the morning sun. These glasses are not to be taken off, but the water sprinkled over them will afford sufficient moisture to the earth. The front of a greenhouse, or a cool frame, is recommended for these pots.

As the spring is the season we desire to have our Auriculas in flower, all the autumnal buds should be carefully taken off to strengthen the plants for the early flowering; and as the Auricula blossoms at the same season of the year that the Hyacinth and Jonquil flower, a most desirable assemblage for the house may be formed, by a judicious mixture of these plants being placed on a window table, with a sunk centre to receive the depth of the pots, which should for this purpose be of a square shape, so as to fit close, as well as to exactly fill the space in the table. These little table gardens are a great ornament to the saloon in the spring, and often beguile the time of the invalid in the most happy manner; for, in whatever situation we meet with fine flowers, they give a calm cheerfulness conducive to health, and the care they require is only asked of our leisure; whilst that of birds and animals which are confined to the house must be regularly attended to at their call, or they become offensive and annoying.

ON THE ANALYSATION OF SOILS AND MANURES.

(*Continued from page* 292.)

MURIATIC (hydrochloric) acid dissolves lime (chalk), magnesia, and oxide of iron; it also will take up aluminum (clay), but in very small quantity, unless a long continued heat be applied. The muriatic acid of the shops, if good, ought to be of 1180 or 1200 specific gravity—compared with distilled water of 1000—that is, supposing any given measure of pure distilled water to weigh one ounce, one pound, or any other unit, good muriatic acid should, in the same bulk, weigh one ounce, pound, etc., and about one-fifth more; but this is too strong to operate with; it therefore is to be diluted with twice its volume of rain water. A quantity of this diluted acid being ready, the two quantities of the soil, each of 180 grains, are to be disposed of: one in a four-ounce phial with a widish neck, the other in an evaporating basin, or in a Florence oil flask. Place the phial in a scale, and by its side, in the same scale, put another phial, or measure-glass, containing 360 grains of the reduced muriatic acid; weigh the two bottles and their contents, with great precision; note the weight, and let the bottles and weights remain in the scales. Prepare the same quantity of dilute acid for the other 180 grains of soil, and then proceed thus: pour some of this last parcel of acid into the basin or flask, stir or shake the contents, and observe whether much hissing (effervescence), with frothy bubbles be produced. If there be, the presence of much chalk is ascertained, and caution indicated while operating with the substances in the scale. When it is found that the liquid will not be carried over the side of the vessel by the force of effervescence, all the acid of the second parcel may be added, and the mixture left to digest for two hours; it should, however, be stirred two or three times with a strip of glass, or be shaken, if in a glass flask.

The required caution being pointed out, the phials in the scale are to be attended to. Into that containing the soil, drop very gradually, or pour in more freely (according to the indication of the process above described), some of the diluted acid of the other phial. Agitate the contents after every addition, always observing that none of the mixture be forced out of the phial. This caution must ever be attended to in chemical experiments, and therefore, I am desirous to impress it upon the mind of a young experimenter: a little practice will soon bring on a habit of circumspection. The whole of the acid having been decanted from one phial into the other, and the contents being thoroughly mixed by the requisite agitations, the phials are to remain side by side in one scale, and the balancing weights in the other. Let the mixture be occasionally shaken till it be evident that no further bubbles or effervescence can be excited, and then let it stand till two hours have passed. Both parcels have thus been acted upon by the same solvent, and for almost precisely the same time, but in different positions for determining results. The parcel in the basin or flask has lost as great a quantity of elastic fluid as that in the phial, but neither the bulk nor the weight of that fluid (which is *carbonic acid*) can be ascertained; whereas the parcel in the phial, provided the operator have been careful to maintain the same position of both phials and their balancing weights, is placed in a situation wherein the loss will be readily discovered. The two phials being now weighed again, will be found to have lost weight, and, therefore, small weights must be added to the scale with the phials till it slightly proponderate; and then by counting the number of grains so added, the operator will detect, precisely, the quantity of elastic acid which has passed off.

The reader, will, I think, be at no loss to pursue the directions thus detailed, without let or perplexity, and may then turn to the consideration of the results.

Perhaps so little action has been induced in the *basin*, that it has scarcely been perceptible; and in the phial, there has been hardly any loss of weight. One parcel will have been a correcting check to the other, and so far the student have found a source of satisfaction; but another result, and one far more important, remains to be mentioned. In passing, I remark, that this inaction, and scarcely sensible loss of weight, combine to prove that little calcareous matter has been in the soil; that point is settled. But I will let it pass, for it best suits my purpose to presume that several grains of elastic fluid have escaped.

Lime exists in soils in a state of *carbonate*, that is, in union with carbonic acid; but its affinity for that acid, is less than for muriatic acid. When, therefore, the latter is placed in contact with it, the former is abandoned, and escapes in the state of gas, leaving the lime united with the stronger acid, in the form of a *liquid* muriate of lime.

In order to determine the quantity of carbonate of lime, the weight of the gas lost must be carefully examined: it is rather unfortunate that chemists differ in their calculations. Henry estimates the carbonic acid in every 100 parts, to be about 35 parts, others state it at 39. Davy says, " Carbonate of lime in all its states contains a determinate proportion of carbonic acid, *i. e.*, nearly 43 per cent.;" and for every 4¼ grains of elastic gas loss, he estimates the carbonate of lime to be 10 grains. We will, in this case, suppose that the experiment with the two phials has produced a diminution in weight of 6 grains; the quantity, therefore, of carbonate of lime, in the 180 grains left after drying, etc., is about 15 grains. To correct this experiment by comparison, recourse must be had to the other parcel of soil of 180 grains. The contents of the basin or flask must be poured into an accurately-weighted filter placed in a glass funnel, and the liquor which percolates is to be caught in a glass vessel; the soil in the paper is to be washed repeatedly with pure water, till it drops free from acid flavour, and the filter, after being laid for a time upon a lump of chalk, is to be dried and weighed as before: the loss of weight when perfectly dry, will indicate the quantity of matters dissolved, but not that of the carbonate of lime only, because the solution contains a certain portion of iron, if not magnesia, etc. Another test, therefore, must be resorted to.

4. *Process by Prussiate, or Ferro-cyanate of Potash.*—Dissolve 20 grains of the salt in about half an ounce of water, weigh this solution, and drop it by degrees into that of the previous process. A copious precipitate of Prussian blue will be produced, and additions of the test are to be made till no more precipitate be formed. The process cannot be effected at once, because so much blue is often present, that the whole of the liquid is full of it, and time must be allowed to let it subside: try the clear fluid thus, till the falling drop of the test cease to yield any blue; then again pass the solution through a weighed filter, let it drop perfectly free from blue, and wash the precipitate till no saline taste be discernible. Reserve the blue for another operation.

Into the clear liquor drop strong solution of *Carbonate of Potash* (this forms the 5th process), and continue the addition till effervescence cease, and a white precipitate falls down. Solution of carbonate of potash is to be added to some excess, the acid will then be subdued, the chalk will be yielded, and the supernatant fluid will be muriate of potash, with a slight redundance of alkali. Prepare a filter, weigh it, pour in the liquid and its sediment, and proceed as before; that is, in this and in *all other similar operations*, wash the precipitate with clear rain water, till no taste be perceived; then absorb the water left in it, placing the filter first on a piece of dry chalk, and then by applying heat. The weight of paper and its precipitate will now indicate the quantity of the latter, which ought to correspond very closely with that determined by the previous calculation. Thus, if every process have been correctly conducted, there will be found about 15 grains of carbonate of lime upon the filtering paper, and this will agree with the estimate.

Magnesia, perhaps to the extent of a grain or two, may exist with the chalk in the filter. The mode of ascertaining the fact would be tedious, and my limits prevent the description of it here.

6. The *Prussian blue*, in the other paper set aside, must be weighed with its paper, and so must the portion remaining of the prussiate of

potash. Perhaps there are 8 grains of the former, but a part has been produced by the test which always contains some iron. If 8 grains of the dry prussiate have been employed, allow about one-fourth of its weight, or two grains, and 6 grains of Prussian blue will remain. This latter substance is a prussiate of iron, and in order to detect the exact weight of the oxide of iron in it, fire must be employed to drive off the prussic acid; but as great difficulty must attend this method of analysis, in consequence of the close adhesion of the blue to the paper, I propose that a small quantity of hot, caustic alkali—such as soap-lye, or pure potash in solution—be dropped into the filter, till the blue colour pass away, and the sediment become of a foxy brown: the prussic acid will be removed, and become united to the alkali; and then the paper being washed till no taste be present, the substance remaining will be oxide of iron, with perhaps a grain or two of alumine. The weight of the paper when dried, deducted from the gross weight, will give that of the oxide of iron.

7. *Test by Sulphuric Acid.*—The experimenter may either operate with the quantity of soil remaining after the abstraction of the iron from the parcel tested in the basin, or he may proceed first with that in the phial, and apply the prussiate of potash and solution of carbonate of potash, for the separation of the prussiate of iron and carbonate of lime, as directed above. In either case, he will have the same materials to work upon; but there will, in the latter, be a double quantity of the two products, and a like addition to the weight of the remaining soil. The 180 grains of each parcel have been reduced to about 160 grains, and if we suppose one of these to be taken, it will be needful to boil it in a flask or basin, for two or three hours, with a diluted sulphuric acid prepared by cautiously adding 200 grains of the concentrated acid to 800 grains of pure water.

The substances remaining in the soil are usually the clay or alumine, a further dose of oxide of iron, and a large one of fine siliceous earth. The two former are soluble in sulphuric acid, the third is not so; consequently, after the due action of the acid the flinty matter or siliceous earth, is left alone without any other constituent.

After boiling, the vessel may remain till its contents become cool. Then recourse must be had to the filter for the separation of the clear liquid products; and the siliceous earth must be washed as before directed.

The iron is to be precipitated, either by prussiate of potash, or by succinate of ammonia; and lastly, the alumine by carbonate of potash. If succinate of ammonia be used, a brown succinate of iron will be yielded; the alumine will pass through the filter, as a solution of sulphate of alumina. Carbonate of potash will seize the sulphuric acid from this, and throw down the liberated alumine, in the form of a light cloudy mass, of a dingy white colour. Let that be collected, dried, and weighed; weigh also the siliceous earth remaining in the last paper filter, and the analysis by my simple process will be com-

after which the plants must not be removed any more. They must also be gradually hardened to bear the open air; and the pots need not be plunged in the hot-bed after the plants are six inches high. When placed in a balcony to flower, they should be grown in double pots, the interstices between the two being stuffed with moss. The pots should be well drained, but the plants should be supplied abundantly with water. The seeds of Balsams should be used as fresh as possible, as they will not keep good more than a year. Balsams are sometimes propagated by cuttings in pure sand, and covered with a bell-glass.—Ed.]

Preserving Half-Hardy Plants during Winter.—I have no garden, but as I have a large balcony, I have many greenhouse plants, which look very well during summer, but which give me a great deal of trouble in winter. I have been obliged to line all my windows with them, and I have flower-stands full of them in all the living-rooms; but there are still many which I am quite at a loss how to dispose of. I can easily obtain manure, but this is of little use, as I have no hot-bed frame, and the expense of purchasing one would be more than my plants are worth.—*S. K.* [The best way of protecting plants, under the circumstances mentioned, is to have a frame made of wood (which can be put together by any common carpenter), erected against a wall in any convenient place, where it will be out of sight. When the frame is erected, a wall of manure should be formed, or if manure cannot readily be obtained, turf, or stones, or bricks lined with straw or hay will do. Within this wall the pots may be placed as closely as possible; and where manure can be obtained easily, a little may be laid on the earth in each pot. Some Russian matting, old carpet, tarpauling, or baize, may then be nailed over the top and sides of the frame, and a piece left loose to hang down in front like a curtain. When the weather is very severe, an additional covering of matting, or old blankets, may be thrown over the frame; but the curtain in front should be thrown up to admit the air, whenever the weather is sufficiently mild; and the mat in front should be kept fastened up, and an oil-cloth thrown over the frame in continued rains least the damps should damp off.—Ed.]

Winter-Flowering Heaths.—I have long been very fond of Heaths; and I wish particularly to know what kinds will flower in winter. Can you favour me with a list of those most ornamental in December, January, and February, with a few hints for their culture?—*A Subscriber.* [One of the most beautiful of the winter Heaths is that appropriately named *Erica hyemalis*, with a profusion of blush-coloured flowers; but many others are often very abundantly in flower during the winter months. Of these, *Erica Archeriana* retains its fine red flowers nearly all the winter; *E. ollula* has rose-coloured flowers; *E. autumnalis* has red flowers; *E. grandinosa* is a handsome species, the flowers of which are white; *E. Bowieana* is white; *E. vestita coccinea* and *E. v. superba*, both splendid plants, have red flowers, and both require a loamy soil, like that used for Geraniums; *E. Sebana lutea* has yellow shining flowers, and should be grown in lime rubbish mixed with very sandy peat; *E. Lambertiana* has white flowers; *E. caffra*, white fragrant flowers; *E. imbricata*, pink flowers; and *E. Massoni*, which has orange and green flowers, should be grown in pure sand, with artificial heat. Many other kinds might be mentioned. The great secret of managing Heaths is to water them regularly, never giving them either too much or too little. The pots should be well drained, and the best soil for most of the species is a mixture of peat and silver sand. The plants should be potted high, with the collar of the plants slightly raised above the surface, as when this part is covered with soil, it is very apt to rot.—Ed.]

Cyclamens.—The Cyclamen is universally admired for its neat, chaste, pearly, white and crimson blossoms, adapting itself to the simplest culture, and enduring the lowest degree of cold consistent with a cool greenhouse or drawing-room temperature, and, on the other hand, to the simple protection of a low cold pit or frame for the hardier species in pots. The greenhouse kinds are represented by the well-known *C. Persicum*, with its extremely neat, and somewhat picturesquely dappled green and silvery grey, rounded, heart-shaped leaves, which, in the autumn months, first form a low leafy canopy, and as spring approaches, are followed by a profusion of erect, slender flower-scapes, six to nine inches in height, each terminating with elegantly recurved coronets of pure silvery-white, oblong-lanceolate petals, each flower not unlike a diminutive crest plete, as far at least, as refers to the four staple earths of the soil. Minutiæ must not be attended to, before the analyst becomes a practised chemist.

RECAPITULATION OF PROBABLE RESULTS.

	Grains.
Water of absorption driven off by heat, say	20
Do. of lixiviation which contains vegetable extract, muriates of soda, and lime, say	20
Carbonate of lime from the muriatic acid in both parcels 15 by 2	30
Iron from this acid in the form of oxide	8
Siliceous matters of the two united parcels............	276
Iron from the sulphuric acid	6
Alumine from do.	25
Loss by washing filter, etc.	15
Total	400

When the student shall have acquired some dexterity in the performance of these simple experiments, he will perceive the necessity of deeper research: and to conclude with the words of the great Davy—he will gain general information by attempting original investigations. "In pursuing his experiments, he will continually be obliged to learn from books the history of the substances he is employing or acting upon; and his theoretical ideas will be more valuable in being connected with practical operation, and acquired for the purpose of discovery."

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THE LADIES' FLOWER-GARDEN AND SHRUBBERY.

(*See Plate.*)

THE design here given is intended for ladies who are enthusiastic in floriculture. It is entered through a shrubbery with a walk on the right and left, leading round to a tea-room or summer-house, and at its front on each side there is a site intended for a flower-basket or vase. On each side of the centre walk leading to the flower-garden, a site is marked out for a statuette or some structure for embellishment. These lawns might be furnished with a selection of choice articles, and considered as an arboretum on a small scale. The flower-garden has a pond in the centre for gold and silver fishes, and the four round figures with a dot in the centre, for pillars of roses; small squares are also shown for articles of embellishment. On the south side of the flower-garden a plant-house is given; at its eastern end a pit is presented, and on the west a shed for potting, etc., with room for compost, and as well as ruby-red, a large white flower; tall and showy. *White Eagle*, pure white, large and good. *White Swan*, creamy white, with fine red lines; tall. MIXED COLOURS.—*Amiable Rosette*, white, flushed with pale rose, extra; very attractive, and well suited for a back row. *Alida Marie*, clear white, tipped and flaked with crimson; very dwarf. *Archus*, violet, fading off to lilac; dwarf and neat. *Belle Lisette*, white, edged and flaked with lively rose colour; extra form, and a beautiful dwarf Tulip. *Bizard Aimable*, orange, feathered and flaked with rich bronzy-crimson. *Cerise de France*, white, very beautifully feathered with cherry-colour. *Comte de Virgennes*, white, also feathered with crimson; dwarf. *Dorothé Blanche*, clear white, heavily flaked with deep rose. *Duc de Guise*, fine bronzy-red, with orange-yellow border; tall and very gay. *Duc de Holstein*, yellow ground, with deep crimson flakes; does best as a back row flower. *Duchesse de Clarimond*, white, with rich violet stripes; good. *Grisdelin Aimable*, bluish-lilac, feathered and striped with dark violet; fine, a back row flower. *Grootmeister van Malta*, a neat, dwarf white, richly flaked with cherry colour. *Keizer Kroon*, rich yellow, with inner flakes of bronzed red, and margined with yellow. *La Belle Rosette*, white, flushed and feathered with rose; fine form. *La Remarquable*, white, with inner crimson bars and white border; dwarf. *Ma Plus Aimable*, bronzy-red, with large rich orange flakes; dwarf and very showy. *Rose Tendre*, white, with rich crimson feather, and stripes; dwarf and very good. *Superintendent*, dwarf white, richly flamed with violet purple; very pretty. *Violet Blanche*, white ground, flushed with rosy-purple, and feathered centre; tall. *Violet Hative*, purple-violet, with white marginal lines. *Yellow and Red of Leyden*, bronzy-crimson, with yellow margin; effective.—*J. W. B.*

ERRATUM.—We much regret that, in copying a communication from "*A Correspondent, J.*," respecting a floral exhibition in the north, our amanuensis fell into an error; instead of its being a report of the Felton exhibition, it referred to that of Alnwick. We apologise to our esteemed correspondent, for the mistake, and trust our readers will also excuse it; we take much pains to avoid clerical and printers' errors, which, nevertheless will sometimes occur after great care has been exercised.—ED.

STRANGE VISITORS TO OLD GARDENS.—The following curious passage occurs in one of Bradley's works on gardening, written about 1690; and it appears to relate to the flowering of the American Aloe (*Agave Americana*), and the Torch Thistle (*Cereus speciosissimus*), for the first time in England. The latter was, as we may easily conceive, thought in those days the rarest and most valuable of the two; and accordingly against it the rage of the assailants was chiefly directed:—"When the Aloe was in such great perfection as to invite more company than my house and garden could well contain, and the flowers of my Torch Thistle were opening, three men, habited like gentlemen, were inadvertently let up to see it, who no sooner were come to the plant but one of them began to break off the buds; and being desired to desist, took hold of the main stem and endeavoured to break it by violence; but it was much to strong to give way to their base intent. This their attempt was soon discovered by all the gentlemen and ladies in my garden, and I was called to the assistance of my servant, and to save my plant from the fury of their rage. When immediately one, who was on the top of the staircase in my Aloe-house, being entreated by me to come down, fell a swearing and drew his sword on my man, telling him he would run him through the body if he offered to assist me; and in the meantime kicked me on the head when I offered to go up, while another at the bottom of the stairs, one of his companions, pulled me by the legs, and a third of them wounded me with his sword in two places of my neck, so that I was under the surgeon's hands for many weeks, devoid of attending the various persons that did me the honour of coming to my garden, which was one disadvantage. And, moreover, the violence I had received occasioned all the good company that were ready to see my curiosities to leave my garden; to the great loss, not only of the money I might have gained, but, I fear, that noble company might be disobliged. I am the more particular in this account, that I may have an opportunity of acquainting that worthy assembly thoroughly of the case, and to inform the world, at the same time, that I have prosecuted the persons that committed the riot; notwithstanding one of them said he was offered to be put in the commission on the peace two or three months before, and would now accept on't, that he might have an occasion of destroying my plants and ruining my house."

ECHEVERIAS.—It is not often that we see much advanced in praise of these plants, which, in common with most succulents, are seldom grown and flowered in that state of perfection they are capable of. Echeverias are all more or less ornamental when in flower; some dwarf and herb-like in their manner of growth, and others more or less shrubby in their habit. They are all free-growing plants, requiring to be kept in the greenhouse, and like most other succulents, to be carefully watered, especially during winter: in fact, the soil must never approach a sodden condition, an essential point in the culture of most plants, and which is usually sought to be secured, in the case of succulents, by a very porous mechanical composition of the soil in which they are grown. They must, however, be kept freely supplied with water whilst making their growth. What is called sandy loam, or, in place of this, any pure loam, made rather porous by the addition of clean sharp sand, should form the staple of the compost used for them; three parts of this porous loam, mixed with one part of pounded bricks, or of charcoal broken up quite small, will grow them well; and as they gain size, they require moderate-sized pots, which must be thoroughly drained with potsherds or charcoal. While growing, the plants may be kept in a light airy part of the greenhouse; and when the growth is completed, they should be set in a dry sunny place, and be sparingly watered, which will serve to thoroughly ripen them, and secure their flowering. As conducive to this ripening process, a gravel walk on the sunny or south side of a wall or glass-house, is no bad substitute for the exposed rocks of their native home. Echeverias are readily propagated by the leaves, especially those produced along the flower-stem; these, if suffered to fall on the surface of the soil, will soon become converted into young plants; and so strong is this tendency, that in some of the species, these cauline leaves form starvling plants if they accidentally fall on the shelves or floor of the house, and are suffered to remain undisturbed. When they are planted, their lower ends should be very slightly inserted into a pot of very sandy loam, which must be watered only sufficient to keep the surface slightly damp. Sometimes, indeed, this process is not necessary; and, in any case, leaves laid on the surface of the soil, will form plants, if they are but prevented from becoming parched up, and kept in a shady place until their roots have established themselves in the earth.

OXALIS DEPPEI.—This plant produces fleshy roots, for the sake of which it is sometimes cultivated. The roots, which are thick fleshy tapering bodies, are of very delicate flavour, and are exceedingly wholesome, forming a good substitute for Sea-kale or Asparagus, from November to January. This Oxalis requires a warm sheltered situation, and a rich deep loamy soil. The bulbs, which are produced in clusters around the thick end of the fleshy roots, may be planted some time in March, in rows a foot apart, and about the same distance apart in the rows; they should be put in three inches deep. During summer, they only require occasional hoeing, and watering when the weather is very dry. The fleshy portion, which is eaten, is not formed until late in the autumn, consequently by the month of October the surface of the ground should be covered over with litter, as a protection from early frosts, and so that the roots may grow on without disturbance. By the end of November some of the roots would be ready for use, and may be taken up; but the majority should be left in the ground as long as possible, so that frosts and rain are kept from them, which may be done by means of any spare lights or shutters. Before the weather gets very severe they must be taken up and stored amongst dry sand, in a cool dry place, beyond reach of frost. A supply of the bulbs—the scaly bodies clustered about the base of the stems at the top of the fleshy roots—must be retained for the next year's planting. The young leaves and flowers are sometimes used in soups and salads, as are those of the *Oxalis crenata*, but for these purposes they are not of much importance.—*B. W.*

PROPERTIES OF THE CAMELLIA.—The *Camellia japonica* is, perhaps, one of the most beautiful of flowering evergreen shrubs, a favourite with everybody, interesting in all its stages of growth and bloom, and, beyond description, magnificent, when well grown and flowered. The most awkward and imperfect of the varieties and species is noble in some stage—for instance, when the buds are opening, and before they are forward enough to disclose their imperfections; but we are every year enriching the family with new varieties, which of late years have become favourites or otherwise, in proportion as they advance towards the desired model. The standard we desire to see attained, comprises the following important features:—*First*, the flower should be perfectly round in its outline, and form half a globe on the face. *Second*, the petals should be smooth on the edges, free from the slightest indenture or serrature, and thick as well as firm in texture. *Third*, they should imbricate, that is, the centre of one petal should cover the part where the two under petals lap or cross each other, and this should continue to the centre, each row of petals rising sufficient above the other to form a globular face. *Fourth*, as a consequence, there should be perfect symmetry, and order, prevailing throughout the flower. *Fifth*, The plant should be short-jointed, so that the growth would be shrubby and compact, the blooms should be at the ends of all the shoots fairly beyond the foliage which should hide the stems that are beneath it, and present a bright surface of dark green. *Sixth*, although large flowers are desirable with large foliage, small blooms would be as valuable when the leaves are small in proportion, therefore no size can be defined as preferable. *Seventh*, as regards colour, taste must have its enjoyment; but, whatever shade it may be, it should be dense and decided, from pure white, through all the grades of rose-colour, to deep scarlet, the preference being given, on this point, to novelty, where other claims are equal. *Eighth*, with respect to variegated flowers, whether blotched or striped, the colours should be well defined and positive, with even edges where they meet, and not clouded or shaded into one another. *Ninth*, the plant should be bushy, and the foliage close, down to the rim of the pot, no bare stem should be seen, and the specimen should be all round alike, that is, all sides, should be close and good.—*G. Glenny.*

STATICE SINUATA.—This is a very singular flower—one that always excites admiration, by the peculiarity of its flowers. Whilst its corolla is colourless and delicate, its calyx is its prominent banner of display, being lilac-coloured, and comparatively large. It is also scariose, or dry and chaffy; consequently its colour continues good in the herbarium. Although this plant is perennial, it is most easily cultivated as a biennial, by those who do not possess a greenhouse. Young plants may be kept in the cold frame, or by the use of some other convenient house protection, but they will not so certainly succeed after having flowered. Its seeds, which are sparingly produced, should be sown in spring, in a hot-bed; transplanted singly into pots, and protected during winter. These, if turned out, at the end of April, into a border of light rich soil, will amply repay the attention which they may have received.

PHILODENDRON PERTUSUM.—This plant, although not to be met with in many collections, deserves certainly a more extended cultivation, on account of its very fine glossy green foliage, which measures from two to three feet in length and breadth, and is very curiously pierced in various parts. There is a very fine specimen at W. W. Saunder's, Esq., near Reigate, which has had fine flowers on it this season. The spathe of the largest flower measured eleven inches by eight; in form, hood-shaped, the interior being whitish, but with more of a cream colour on the back. The spadix greenish, arising in the centre and measured nine inches in length by six in circumferance, supported on a peduncle eight inches in length. The flowers, if I may so term them, remained from three to five weeks in perfection. The pot in which the plant grows is placed about three feet from a large tank of water in the orchid-house, and this it has almost filled with its roots, which are thrown out all up the stem. Its treatment is the same as for the generality of Stove *Aroideæ*.—*J. C. M.*

IPOMÆA OBLONGATA.—This is a half-hardy or greenhouse species; kept in a stove it would not flower, and exposed out of doors in a pot it bloomed very indifferently, whilst it has thriven admirably in a cold frame. Mr. Smyth, the gardener at Wick Hill, describes the treatment he has given it, as follows:—"In March I filled a cold pit with a mixture of loam, peat, and sand, in equal parts, adding a small quantity of well decomposed dung. The plant was turned out into this soil, and kept near the glass, air being admitted freely during the day in fine weather. As soon as it began to grow, abundant supplies of water were given. It flowered for the first time in May and continued to produce a profusion of blossoms until September. In the hottest days the flowers kept open until late at night, and keep their colour well. When in a dormant state, the roots should be kept nearly dry." I am informed that he has no doubt it will prove to be quite hardy, that is, of course, if planted in very sheltered situations, and where it can be kept dry during winter.—*T. K. S.*

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